[redacted]

From: Farhat, Jody S NWD02
Sent: Wednesday, June 01, 2011 9:47 AM
To: [redacted]
Cc: Ruch, Robert J COL NWO; [redacted]
Subject: RE: Facebook Q and As (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

1. Although forecasts change, how long do we anticipate the flows at 150k cfs?
At least through mid-July, but it will depend on the location. We're currently working on a longer range forecast and hope to provide a better estimate later this week.

2. There is criticism of holding releases for the birds.
http://www.keloland.com/NewsDetail6162.cfm?Id=115979
We have not operated for the birds in 2011 and have no intention of doing so this year. We are in full flood operations.

3. Need a general statement about the releases that were made last year and through the winter. (Notes on ice jams might be helpful)
Releases last fall and over the winter were above normal to complete the evacuation of the 2010 flood waters. The full flood control capacity of the mainstem reservoir system was available at the start of the 2011 runoff season.

4. How about a background on the spillway at Garrison? Have a statement from someone that potential outflow from fully open spillway at Garrison is 827,000 cfs - Obviously NOT our plan. Can we talk about HOW that works?
The spillway is designed to pass a flood much greater than the current event. Our forecasts indicate a peak release of 150,000 cfs, which will be passed through a combination of powerplant, regulating tunnel, and spillway releases.

5. Need some notes and comments about dam safety, that the dams are safe.
Our dams are safe. See COL Ruch's remarks in last night's stakeholder conference call and Q&A's I will forward you from Laila Berre.

-----Original Message-----
From: [redacted]
Sent: Wednesday, June 01, 2011 7:44 AM
To: Farhat, Jody S NWD02; MRJIC; [redacted]
Cc: Ruch, Robert J COL NWO
Subject: Facebook Q and As (UNCLASSIFIED)
Importance: High

Classification: UNCLASSIFIED
Caveats: NONE

All,

At yesterday's CMT, Col Ruch asked me to make sure we are answering questions on Facebook.

Some of the questions are above my level of knowledge/understanding.

Rather than try to answer each question directly, I summarized the questions and need a little help with answers.

1. Although forecasts change, how long do we anticipate the flows at 150k cfs?

2. There is criticism of holding releases for the birds.
http://www.keloland.com/NewsDetail6162.cfm?Id=115979

3. Need a general statement about the releases that were made last year and through the winter. (Notes on ice jams might be helpful)

4. How about a background on the spillway at Garrison? Have a statement from someone that potential outflow from fully open spillway at Garrison is 827,000 cfs - Obviously NOT our plan. Can we talk about HOW that works?

5. Need some notes and comments about dam safety, that the dams are safe.

****

[redacted]

Public Affairs Specialist

U.S. Army Corps of Engineers

[redacted]

[redacted]

[redacted]

Internet: nwo.usace.army.mil <https://www.nwo.usace.army.mil/>

Facebook: facebook.com/OmahaUSACE <http://www.facebook.com/OmahaUSACE>

Twitter: twitter.com/OmahaUSACE <http://www.twitter.com/OmahaUSACE>

****

[redacted]

From: Farhat, Jody S NWD02
Sent: Wednesday, June 01, 2011 9:53 AM
To: [redacted]
Subject: RE: Question re: drawing down Lake Sharp (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

Thanks, [redacted]

-----Original Message-----
From: [redacted]
Sent: Wednesday, June 01, 2011 9:44 AM
To: [redacted] Farhat, Jody S NWD02
Cc: [redacted]
Subject: RE: Question re: drawing down Lake Sharp (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

[redacted]

Based on our hydraulic model for the Big Bend to Oahe reach, dropping Lake Sharpe 5 feet below present levels would only lower the water surface by 0.5 feet at the lower end of Farm Island, 0.1 feet at the lower end of LaFramoise Island and essentially do nothing for profiles above the Bad River with the release of 150,000 cfs.

If you have any other questions, please let me know.

[redacted]
Chief, Hydraulics Section
U.S. Army Corps of Engineers
[redacted]
Omaha, NE 68102-9000
[redacted]

-----Original Message-----
From: [redacted]
Sent: Tuesday, May 31, 2011 10:22 PM
To: [redacted] Farhat, Jody S NWD02
Cc: [redacted]
Subject: FW: Question re: drawing down Lake Sharp

[redacted]

This is becoming the biggest question that I can't answer. I have been called by a few of the engineers in SD DENR (friends) and by the Governor's staff on why we're not reducing the level of Lake Sharpe by 3-5 ft to lessen the impact of flooding in Pierre and Fort Pierre. I asked SDEM today to make the request but first to identify the elevation as to which they

would like Lake Sharpe at. They contacted the DENR and they would not recommend an elevation. Therefore, I did not receive an official request today. I know about the court settlement and the process outlined for Tribal negotiations before dropping below 1418.0. The State has determined there would be no impact to the tribes' water supply and the cultural site exposure issues could be reduced with increased surveillance. It's the hydrologic reasons I can't explain. Can you call me or send me data that would support our forecast that only reduces Lake Sharpe to 1419.3 for the duration of the event. If I can get the available technical information I can explain it to the Governor tomorrow in Pierre. As he requested below.

The follow on questions I will need to know is: Do we have time for the draw down and would there be negative impacts felt by the Dakota Dunes area if we do?

Thanks in advance for your help.

[redacted]
Oahe Project
[redacted]
SD State EOC

-----Original Message-----
From: Jason.Glodt@state.sd.us [mailto:Jason.Glodt@state.sd.us]
Sent: Tuesday, May 31, 2011 9:47 PM
To: [redacted]
Cc: Kristi.Turman@state.sd.us; Trevor.Jones@state.sd.us; Tina.Titze@state.sd.us; Tony.Venhuizen@state.sd.us
Subject: Question re: drawing down Lake Sharp

Hello [redacted] Governor Daugaard would like to know if there would be any adverse impacts to Dakota Dunes if we were to draw down Lake Sharp several feet and utilize available capacity in Francis Case. Can you provide an answer to this question? He would like to meet with you and appropriate Corps officials tomorrow at noon to discuss. Let me know if that works for you.

Jason Glodt
Office of the Governor
605.280.7767

Classification: UNCLASSIFIED
Caveats: NONE

Classification: UNCLASSIFIED
Caveats: NONE

[redacted]

From: Farhat, Jody S NWD02
Sent: Wednesday, June 01, 2011 9:54 AM
To: [redacted]
Subject: FW: Garrison Spillway Gate Opening (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

FYSA

-----Original Message-----
From: [redacted]
Sent: Wednesday, June 01, 2011 9:41 AM
To: [redacted]
Cc: [redacted]
Farhat, Jody S NWD02; [redacted]
Subject: Garrison Spillway Gate Opening (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

[redacted]

Just talked with [redacted] concerning the media event at Garrison. Glad to report that everything is going well. They currently have 7 center gates open to the 1 foot mark. The project had previously taken out the culverts in the road below the spillway so the flow is currently going through the road and down the existing channel, no backing up of the water along the road has occurred to date. It is expected that an additional 7 gates will be opened at 2000 this evening.

Traffic and attendance has been manageable, with [redacted] and her team doing an excellent job. There have been about ten media outlets involved so far with TV, radio and print being represented. [redacted] told me that [redacted] did an excellent job on camera, explaining the operation of the dam and gates. It appears to be getting decent coverage. Kevin is continuing to do phone interviews as they come in.

Just thought I would let you know an initial report. Again hats off to Linda, Dale, Kevin and team for an excellent start to historic day one! Will let you know if anything additional comes up.

Thanks,

[redacted]

Classification: UNCLASSIFIED
Caveats: NONE

Classification: UNCLASSIFIED
Caveats: NONE

[redacted]

From: Farhat, Jody S NWD02
Sent: Wednesday, June 01, 2011 10:26 AM
To: [redacted]
Subject: FW: May 2011 Inflow - Talking Points (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

FYI

-----Original Message-----
From: [redacted]
Sent: Wednesday, June 01, 2011 10:22 AM
To: Farhat, Jody S NWD02; [redacted]
Cc: [redacted]
Subject: May 2011 Inflow - Talking Points (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

May 2011 inflow above Sioux City was 10.5 MAF

Previous record May inflow was 7.2 MAF (1995)

May 2011 inflow into Fort Peck was 2.9 MAF; previous May FTPK record was 2.6 MAF (1975)

May 2011 inflow into Garrison was 4.4 MAF; previous May GARR record was 2.8 MAF (1978)

The May 2011 monthly inflow of 10.5 MAF is the 2nd highest monthly total from 1898-2011, exceeded only in April 1952 (13.2 MAF)

Comparing FTPK+GARR May inflows:
1952* = 1.8 + 4.9 = 6.7
1975 = 2.7 + 2.7 = 5.4
1978 = 1.8 = 2.8 = 4.6
1997 = 1.5 + 1.6 = 3.1
2011 = 2.9 + 4.4 = 7.3

1952 record monthly flows occurred in (April) = 1.8 + 4.9 = 6.7

[redacted]

[redacted]
Reservoir Regulation Team Lead
Missouri River Basin Water Management,
Northwestern Division, USACE
[redacted]

Classification: UNCLASSIFIED
Caveats: NONE

[redacted]

From: Farhat, Jody S NWD02
Sent: Wednesday, June 01, 2011 10:37 AM
To: McMahon, John R BG NWD
Subject: travel times (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

Sir - we're working on the travel times right now and will have something very soon.

Jody Farhat, P.E.
Chief, Missouri River Basin Water Management

[redacted]

Classification: UNCLASSIFIED
Caveats: NONE

[redacted]

From: Farhat, Jody S NWD02
Sent: Wednesday, June 01, 2011 10:50 AM
To: McMahon, John R BG NWD; Ruch, Robert J COL NWO; Hofmann, Anthony J COL NWK; Tipton, Robert A Col NWD; [redacted]; Love, Raymond E MAJ NWD; [redacted]
Subject: FW: Missouri River Main Stem Travel Times at High Flows (UNCLASSIFIED)
Attachments: Travel Times on the Missouri River Main Stem at High Flows.xlsx

Classification: UNCLASSIFIED
Caveats: NONE

Sir - attached is our estimates of travel time between the reservoirs and from Gavins Point to primary gaging stations on the lower river.

VR,
Jody

-----Original Message-----
From: [redacted]
Sent: Wednesday, June 01, 2011 10:46 AM
To: Farhat, Jody S NWD02
Subject: Missouri River Main Stem Travel Times at High Flows (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

[redacted]
Missouri Basin Water Managment Division
Northwestern Division
Corps of Engineers
[redacted]

Classification: UNCLASSIFIED
Caveats: NONE

Classification: UNCLASSIFIED
Caveats: NONE

Travel Time to Key Locations on the Missouri River Main Stem at High Flows

		Days
Fort Peck to Garrison Headwaters		3
Garrsion to Oahe Headwaters		1
Fort Randal Dame to Gavins Point Headwaters		1
Gavins Point Dam to:		
	Sioux City	1.0
	Omaha	2.0
	Nebraska City	2.5
	St. Joseph	3.5
	Kansas City	4.0
	Waverly	4.5
	Boonville	5.5
	Hermann	6.0
	St. Louis	7.0

1-Jun-11

[redacted]

From: Farhat, Jody S NWD02
Sent: Wednesday, June 01, 2011 11:39 AM
To: [redacted]
Cc: [redacted]
Subject: RE: Garrison Spillway Issue (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: FOUO

Let us know what changes you may need and we'll do what we can to accommodate. My understanding is that we can get approximately 130 kcfs out of the powerhouse and regulation tunnels combined.

Jody

-----Original Message-----
From: [redacted]
Sent: Wednesday, June 01, 2011 11:31 AM
To: [redacted]
Cc: [redacted]
Subject: Garrison Spillway Issue (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: FOUO

All,
We have closed the gates on the spillway and will be providing the additional 7,500 cfs releases scheduled for this morning via the regulating tunnels. The spraying water we were seeing was being caused by a spall in the concrete where the spillway pond met the spillway apron. There is rebar showing, so I told Dale to notify ED that we need a recommended fix ASAP. We will also be bolting down or welding some manhole covers to ensure they to do not lift off at higher releases. Pending the "fix" we may request a shift in our release schedule???

[redacted]
Operations Project Manager
Garrison Project

Classification: UNCLASSIFIED
Caveats: FOUO

Classification: UNCLASSIFIED
Caveats: FOUO

[redacted]

From: Farhat, Jody S NWD02
Sent: Wednesday, June 01, 2011 11:48 AM
To: [redacted]
Cc: [redacted]
Subject: RE: Garrison Spillway Issue (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: FOUO

[redacted] just reminded me that the likely driver on the spillway use is when we go into surcharge. The pool is currently tracking a little below the forecast put out yesterday, and we understand the actual top of gates of about 1854.5. Can someone confirm?

Jody

-----Original Message-----
From: [redacted]
Sent: Wednesday, June 01, 2011 11:42 AM
To: [redacted]
Cc: [redacted]
Subject: RE: Garrison Spillway Issue (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: FOUO

We'll keep you posted. We plan to shift to the regulating tunnels but I do have some concerns with how the riprap will hold up with such high releases from those tunnels. We've already made two repairs and are working on a third. I'll keep you informed.

-----Original Message-----
From: Farhat, Jody S NWD02
Sent: Wednesday, June 01, 2011 11:39 AM
To: [redacted]
Cc: [redacted]
Subject: RE: Garrison Spillway Issue (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: FOUO

Let us know what changes you may need and we'll do what we can to accommodate. My understanding is that we can get approximately 130 kcfs out of the powerhouse and regulation tunnels combined.

Jody

-----Original Message-----
From: [redacted]
Sent: Wednesday, June 01, 2011 11:31 AM
To: [redacted]
Cc: [redacted]

Subject: Garrison Spillway Issue (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: FOUO

All,
We have closed the gates on the spillway and will be providing the additional 7,500 cfs releases scheduled for this morning via the regulating tunnels. The spraying water we were seeing was being caused by a spall in the concrete where the spillway pond met the spillway apron. There is rebar showing, so I told Dale to notify ED that we need a recommended fix ASAP. We will also be bolting down or welding some manhole covers to ensure they to do not lift off at higher releases. Pending the "fix" we may request a shift in our release schedule???

[redacted]
Operations Project Manager
Garrison Project

Classification: UNCLASSIFIED
Caveats: FOUO

Classification: UNCLASSIFIED
Caveats: FOUO

Classification: UNCLASSIFIED
Caveats: FOUO

Classification: UNCLASSIFIED
Caveats: FOUO

[redacted]

From: Farhat, Jody S NWD02
Sent: Wednesday, June 01, 2011 11:49 AM
To: [redacted]
Subject: RE: Historic Peaks below Gavins (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

And I need the yellow stage forecast tables

-----Original Message-----
From: [redacted]
Sent: Wednesday, June 01, 2011 11:45 AM
To: Farhat, Jody S NWD02
Subject: Historic Peaks below Gavins (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

Some text from Doug Clemetson - 1952 - Sioux City, Omaha, Nebraska City

In response to a question raised yesterday during the 1800 call here is a response:

The 1952 Flood along the Missouri River had a peak discharge of 441,000 cfs at Sioux City with a stage of 24.28 feet. The gage in 1952 was at a different datum so if the 1952 flood occurred today, it would have a stage of 44.26 feet at the Sioux City gage. This year, the forecasted flow at Sioux City with a Gavins Point Release of 150,000 cfs is 170,000 to 200,000 cfs depending on tributary inflows. This would result in a stage of 35 to 37 feet at Sioux City which would be 7 to 9 feet lower than the 1952 peak stage at Sioux City.

At Omaha, the 1952 flood had a peak discharge of 396,000 cfs with a stage of 30.20 feet. In 1952, the gage at Omaha had a datum that was 10 feet higher than today. Therefore, if the 1952 flood occurred today, it would result in a stage of 40.2 feet at the Omaha gage. At Omaha, with a release of 150,000 cfs from Gavins Point, the forecasted flow is 175,000 to 210,000 cfs with a stage of 34 to 35 feet. This is 5 to 6 feet lower than the 1952 peak stage.

At Nebraska City, the 1952 flood had a peak discharge of 414,000 cfs and a peak stage of 27.66 feet. The datum of the Nebraska City gage was 1.42 feet lower in 1952 than it is today, so if the 1952 flood occurred today it would result in a stage of 26.24 feet at Nebraska City. The forecasted flow at Nebraska City this year is 200,000 to 250,000 cfs which will result in stages of 27 to 28 feet at Nebraska City, slightly higher than the 1952 flood due to levee construction and other channel changes.

[redacted]
Reservoir Regulation Team Lead
Missouri River Basin Water Management,
Northwestern Division, USACE
[redacted]

Classification: UNCLASSIFIED
Caveats: NONE

[redacted]

From: Farhat, Jody S NWD02
Sent: Wednesday, June 01, 2011 12:25 PM
To: Tipton, Robert A Col NWD
Subject: RE: Clarification (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

yes

-----Original Message-----
From: Tipton, Robert A Col NWD
Sent: Wednesday, June 01, 2011 12:21 PM
To: Farhat, Jody S NWD02
Subject: Clarification

Jody,

Just to clarify - the travel time from Garrison to Bismarck is about 1 Day...which is the same to the headwaters of Oahe?

Robert A. Tipton, P.E.
COL, EN
Deputy Commander
Northwestern Division
U.S. Army Corps of Engineers

[redacted]

Classification: UNCLASSIFIED
Caveats: NONE

[redacted]

From: Farhat, Jody S NWD02
Sent: Wednesday, June 01, 2011 1:05 PM
To: Tipton, Robert A Col NWD
Subject: RE: WM Update for the CG (UNCLASSIFIED)
Attachments: NWD Missouri Basin Update - 061111.pptx

Classification: UNCLASSIFIED
Caveats: NONE

First 2 slides updated on attached.

-----Original Message-----
From: Tipton, Robert A Col NWD
Sent: Wednesday, June 01, 2011 11:39 AM
To: Farhat, Jody S NWD02
Subject: WM Update for the CG

Jody,

Attached is how the CG would like to get the updates. The second two slides will not change after we get the travel times in and the first two would only change for the Current Stage as of that day and the Projected date of hitting the highest stages based on change conditions...as well as the ranges of course if that changes as well. All the rest of it is the same.

Don't worry about cleaning it up - just send it back to me with the first cut of the data (even if you just give me the travel times in a chart...we will add that on to the map slides) and we will clean it up on this end. I think once we get this set, it shouldn't be too hard to keep updated for the boss.

RT

Robert A. Tipton, P.E.
COL, EN
Deputy Commander
Northwestern Division
U.S. Army Corps of Engineers
[redacted]

Classification: UNCLASSIFIED
Caveats: NONE

Missouri River Basin Stages

1 June 2011

US Army Corps of Engineers
BUILDING STRONG®

	Station	Flood Stage	Current Stage	Likely Range of Highest* Flows/Stages		Projected Date **	Record Stage (Year)
A	Bismarck	16	15.8	150 kcfs 20.6		June 19	
B	Pierre	15	15.2	150 kcfs 18.7		June 7	
C	Yankton	20	19.4	150 kcfs n/a	 Na/	June 14	
D	Sioux City	30	28	170 kcfs 35	200 kcfs 37	June 15	44.28 (1952)
E	Decatur	35	33.1	175 kcfs 40	205 kcfs 42	June 15	43.5 (1943)
)F	Blair	29	27.6	175 kcfs 30	205 kcfs 32	June 15	27.48 (1984)
G	Omaha	29	29.2	175 kcfs 34	210 kcfs 36	June 16	40.2 (1952)
H	Nebraska City	18	22.9	200 kcfs 27	250 kcfs 28+	June 16	27.19 (1993)
I	Brownville	33	39.1	205 kcfs 43	270 kcfs 44+	June 16	44.3 (1993)
J	Rulo	17	22.8	210 kcfs 25.5	290 kcfs 27+	June 17	26.63 (2010)
K	St. Joseph	17	21.8	215 kcfs 27	320 kcfs 32	June 17	32.07 (1993)
L	Atchison	22	24.9	215 kcfs 30	320 kcfs 34	June 17	31.63 (1993)
M	Leavenworth	20	20.9	215 kcfs 27	320 kcfs 33	June 17	35.34 (1993)

Missouri River Basin Stages

1 June 2011

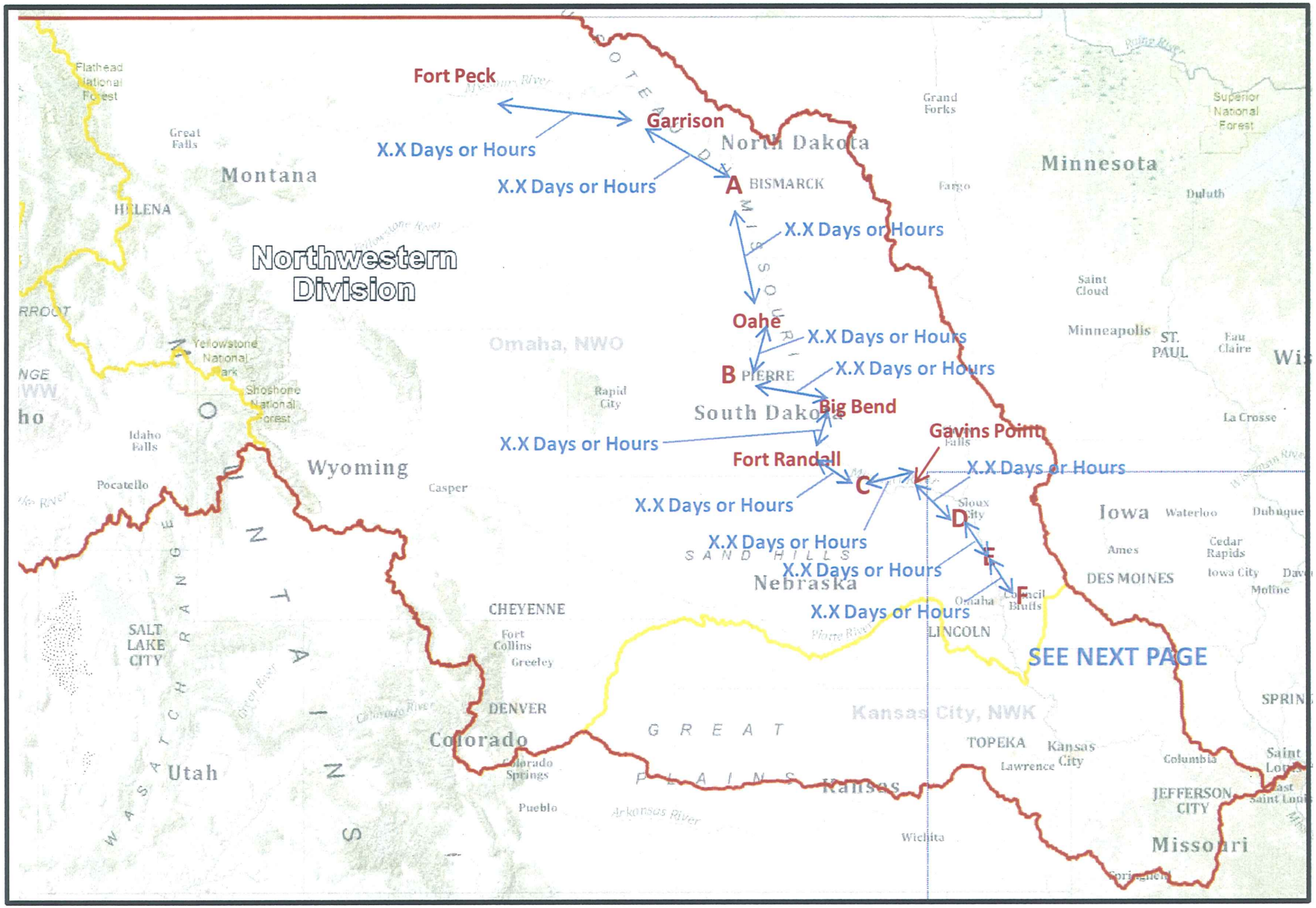
US Army Corps of Engineers
BUILDING STRONG®

	Station	Flood Stage	Current Stage	Likely Range of Highest* Flows/Stages		Projected Date **	Record Stage (Year)
N	Kansas City	32	24.4	220 kcfs 30	350 kcfs 39	June 18	48.87 (1993)
O	Sibley	22	23.2	220 kcfs 28	350 kcfs 33	June 18	40.6 (1952)
P	Napoleon	17	20.2	220 kcfs 25	350 kcfs 29	June 18	26.7 (1993)
Q	Waverly	20	22.9	230 kcfs 27	370 kcfs 31	June 18	31.15 (1993)
R	Miami	18	21.5	235 kcfs 26	370 kcfs 30	June 19	32.6 (1993)
S	Glasgow	25	24.9	250 kcfs 32	410 kcfs 37	June 19	39.5 (1993)
T	Boonville	21	21.9	260 kcfs 27	420 kcfs 33	June 19	37.1 (1993)
U	Jefferson City	23	21.1	260 kcfs 27	430 kcfs 35	June 19	38.3 (1993)
V	Chamois	17	18	290 kcfs 24	450 kcfs 29	June 19	33.3 (1993)
W	Gasconade	22	25	300 kcfs 30	470 kcfs 35	June 19	39.6 (1993)
X	Hermann	21	22.6	300 kcfs 27	470 kcfs 33	June 20	36.97 (1993)
Y	Washington	20	19	300 kcfs 23	470 kcfs 32	June 20	35.4 (1993)
Z	St. Charles	25	25.4	300 kcfs 28	470 kcfs 37	June 20	40.04 (1993)

Missouri River Travel Times

1 June 2011

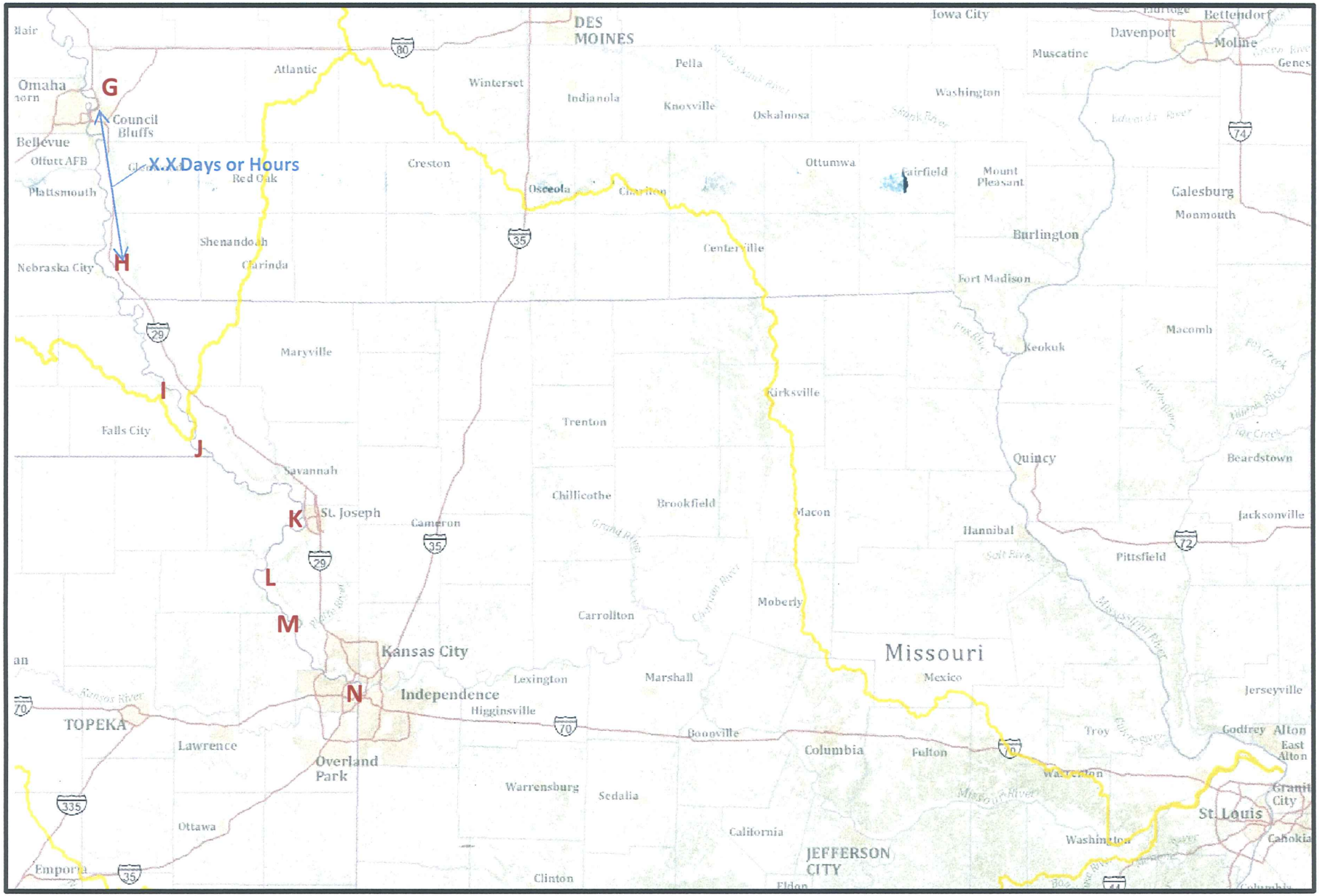
US Army Corps of Engineers
BUILDING STRONG®



Missouri River Travel Times

1 June 2011

US Army Corps of Engineers
BUILDING STRONG®



[redacted]

From: Farhat, Jody S NWD02
Sent: Wednesday, June 01, 2011 1:12 PM
To: Tipton, Robert A Col NWD
Subject: RE: Clarification (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

The only comment I have is the long arrow between Bismarck and the Oahe headwaters isn't needed. With the pool this high the Oahe headwaters is near Bismarck. Everything else is fine.

-----Original Message-----
From: Tipton, Robert A Col NWD
Sent: Wednesday, June 01, 2011 12:59 PM
To: Farhat, Jody S NWD02
Subject: RE: Clarification (UNCLASSIFIED)

Thanks,

Take a quick look at these for accuracy and clarity please. Appreciate all the hard work.

RT

Robert A. Tipton, P.E.
COL, EN
Deputy Commander
Northwestern Division
U.S. Army Corps of Engineers

[redacted]

-----Original Message-----
From: Farhat, Jody S NWD02
Sent: Wednesday, June 01, 2011 10:25 AM
To: Tipton, Robert A Col NWD
Subject: RE: Clarification (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

yes

-----Original Message-----
From: Tipton, Robert A Col NWD
Sent: Wednesday, June 01, 2011 12:21 PM
To: Farhat, Jody S NWD02
Subject: Clarification

Jody,

Just to clarify - the travel time from Garrison to Bismarck is about 1 Day...which is the same to the headwaters of Oahe?

Robert A. Tipton, P.E.
COL, EN
Deputy Commander
Northwestern Division
U.S. Army Corps of Engineers

[redacted]

Classification: UNCLASSIFIED
Caveats: NONE

Classification: UNCLASSIFIED
Caveats: NONE

[redacted]

From: Farhat, Jody S NWD02
Sent: Wednesday, June 01, 2011 1:51 PM
To: Tipton, Robert A Col NWD
Subject: RE: WM Update for the CG (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

The numbers were red when I typed them in - I assumed it was your formatting for whatever reason. And I have not seen any peak stages for Yankton.

-----Original Message-----
From: Tipton, Robert A Col NWD
Sent: Wednesday, June 01, 2011 1:17 PM
To: Farhat, Jody S NWD02
Subject: RE: WM Update for the CG (UNCLASSIFIED)

Thanks Jody - looks great. Two quick questions. The red numbers indicate what? Also, I take it that we have no projected peak stage for Yankton?

Otherwise - I think this is exactly what the boss needs. I will QC them and then send them back to you once I get the CG's buy in. If we can then update these daily --- if no changes just update the as of date, which I will add.

I'll try not to bother you for the rest of the day....

Thanks,

RT

Robert A. Tipton, P.E.
COL, EN
Deputy Commander
Northwestern Division
U.S. Army Corps of Engineers
[redacted]

-----Original Message-----
From: Farhat, Jody S NWD02
Sent: Wednesday, June 01, 2011 11:05 AM
To: Tipton, Robert A Col NWD
Subject: RE: WM Update for the CG (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

First 2 slides updated on attached.

-----Original Message-----
From: Tipton, Robert A Col NWD
Sent: Wednesday, June 01, 2011 11:39 AM
To: Farhat, Jody S NWD02

Subject: WM Update for the CG

Jody,

Attached is how the CG would like to get the updates. The second two slides will not change after we get the travel times in and the first two would only change for the Current Stage as of that day and the Projected date of hitting the highest stages based on change conditions...as well as the ranges of course if that changes as well. All the rest of it is the same.

Don't worry about cleaning it up - just send it back to me with the first cut of the data (even if you just give me the travel times in a chart...we will add that on to the map slides) and we will clean it up on this end. I think once we get this set, it shouldn't be too hard to keep updated for the boss.

RT

Robert A. Tipton, P.E.
COL, EN
Deputy Commander
Northwestern Division
U.S. Army Corps of Engineers
[redacted]

Classification: UNCLASSIFIED
Caveats: NONE

Classification: UNCLASSIFIED
Caveats: NONE

[redacted]

From: Farhat, Jody S NWD02
Sent: Wednesday, June 01, 2011 3:38 PM
To: [redacted]
Subject: FW: Garrison Spillway Issue (UNCLASSIFIED)
Attachments: Spillway Gates - Elevation.pdf

Classification: UNCLASSIFIED
Caveats: FOUO

-----Original Message-----
From: [redacted]
Sent: Wednesday, June 01, 2011 11:53 AM
To: Farhat, Jody S NWD02; [redacted]
Cc: [redacted]
Subject: RE: Garrison Spillway Issue (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: FOUO

I've attached the most recent data we have on the gate elevations...

-----Original Message-----
From: Farhat, Jody S NWD02
Sent: Wednesday, June 01, 2011 11:48 AM
To: [redacted]
Cc: [redacted]
Subject: RE: Garrison Spillway Issue (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: FOUO

[redacted] just reminded me that the likely driver on the spillway use is when we go into surcharge. The pool is currently tracking a little below the forecast put out yesterday, and we understand the actual top of gates of about 1854.5. Can someone confirm?

Jody

-----Original Message-----
From: [redacted]
Sent: Wednesday, June 01, 2011 11:42 AM
To: [redacted]
Cc: [redacted]
Subject: RE: Garrison Spillway Issue (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: FOUO

We'll keep you posted. We plan to shift to the regulating tunnels but I do have some concerns with how the riprap will hold up with such high releases from those tunnels. We've already made two repairs and are working on a third. I'll keep you informed.

-----Original Message-----
From: Farhat, Jody S NWD02
Sent: Wednesday, June 01, 2011 11:39 AM
To: [redacted]
Cc: [redacted]
Subject: RE: Garrison Spillway Issue (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: FOUO

Let us know what changes you may need and we'll do what we can to accommodate. My understanding is that we can get approximately 130 kcfs out of the powerhouse and regulation tunnels combined.

Jody

-----Original Message-----
From: [redacted]
Sent: Wednesday, June 01, 2011 11:31 AM
To: [redacted]
Cc: [redacted]
Subject: Garrison Spillway Issue (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: FOUO

All,
We have closed the gates on the spillway and will be providing the additional 7,500 cfs releases scheduled for this morning via the regulating tunnels. The spraying water we were seeing was being caused by a spall in the concrete where the spillway pond met the spillway apron. There is rebar showing, so I told Dale to notify ED that we need a recommended fix ASAP. We will also be bolting down or welding some manhole covers to ensure they to do not lift off at higher releases. Pending the "fix" we may request a shift in our release schedule???

[redacted]
Operations Project Manager
Garrison Project

Classification: UNCLASSIFIED
Caveats: FOUO

Classification: UNCLASSIFIED
Caveats: FOUO

Elevations of Spillway Gates
Garrison Project

Gate	West Side Elev.	East Side Elev.
1	1854.74	1854.76
2	1854.80	1854.82
3	1854.86	1854.85
4	1854.90	1854.91
5	1854.91	1854.89
6	1854.91	1854.89
7	1854.93	1854.96
8	1854.95	1854.96
9	1854.98	1855.01
10	1854.99	1854.94
11	1855.00	1854.99
12	1854.96	1854.93
13	1854.94	1854.93
14	1854.95	1854.86
15	1854.89	1854.87
16	1854.83	1854.76
17	1854.75	1854.79
18	1854.74	1854.74
19	1854.74	1854.76
20	1854.69	1854.67
21	1854.73	1854.71
22	1854.69	1854.65
23	1854.63	1854.55
24	1854.66	1854.64
25	1854.58	1854.60
26	1854.65	1854.61
27	1854.57	1854.54
28	1854.54	1854.55

Note: These are the correct elevations for the spillway gates at the Garrison Project.

[redacted]

From: Farhat, Jody S NWD02
Sent: Wednesday, June 01, 2011 3:47 PM
To: [redacted]
Cc: [redacted]
Subject: RE: Onawa, Iowa (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

I suggest someone familiar with the inundation mapping since I'm sure that's the most important information they can use right now.

Jody

-----Original Message-----
From: [redacted]
Sent: Wednesday, June 01, 2011 3:33 PM
To: Farhat, Jody S NWD02
Cc: [redacted]
Subject: FW: Onawa, Iowa (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

Jody: Wat are your thoughts about who should go out there.

-----Original Message-----
From: [redacted]
Sent: Wednesday, June 01, 2011 2:56 PM
To: [redacted]
Cc: [redacted]
Subject: FW: Onawa, Iowa (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

[redacted]

I have been contacted by Randy Ross from the city of Onawa, Iowa. He has requested someone from the Corps to attend a 7PM, June 3, 2011 town hall meeting. Looking for your guidance and direction as to whether we attend, and if we do, who is the right person to attend.

[redacted]
Environmental Remediation Branch
Planning, Programs & Project Management Division US Army Corps of Engineers, Omaha District
[redacted] Cell: 402-850-5381

Classification: UNCLASSIFIED
Caveats: NONE

[redacted]

From: Farhat, Jody S NWD02
Sent: Wednesday, June 01, 2011 4:24 PM
To: [redacted]
Cc: CENWO-EOC NWO; [redacted]
Subject: RE: mainstem data for NWO sitrep (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

[redacted] is updating our situation report every day so let's have him fulfill this data request too.

Jody

-----Original Message-----
From: [redacted]
Sent: Wednesday, June 01, 2011 4:18 PM
To: [redacted]
Cc: [redacted]
Subject: mainstem data for NWO sitrep (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

[redacted]

I request that your office to begin providing the mainstem dam data below for the NWO sit rep. Our office is having a hard time staying up on the changes and making sure we have accurate data. Please provide the following to the email address CENWO-EOC by 1600 daily. Information cutoff is 1400.

We have been attaching these two documents at EM's request. If you would like to use them Alex or Jessica can hook you up. Caleb is also developing this mainstem star office bulletin to include recent hourly data.

Please contact [redacted] if you have other questions.

Thanks,
[redacted]

****

Missouri River Mainstem Reservoirs:

Following is a link to the mainstem regulation forecast. Refresh to obtain the most recent copy if you keep this link open.

http://www.nwd-mr.usace.army.mil/rcc/reports/twout.html

Notes for data below: pool elevation is the midnight value; average inflows and average releases are average daily values; scheduled releases are the release from the project at the end of the day per yesterday's project orders.

Fort Peck Dam (MT)

5/31 Pool Elev: 2248.93 ft-msl

24-hr change: 0.52'

5/31 Ave Inflow: 78,000 cfs

5/31 Ave Release: 9,700 cfs

6/1 Scheduled Release: 10,000 cfs

Garrison Dam (ND)

5/31 Pool Elev: 1853.34 ft-msl

24-hr change: 0.21'

5/31 Ave Inflow: 137,000 cfs

5/31 Ave Release: 85,500 cfs

6/1 Scheduled Release: 100,000 cfs

Oahe Dam (SD)

5/31 Pool Elev: 1618.76 ft-msl

24-hr change: 0.15'

5/31 Ave Inflow: 103,000 cfs

5/31 Ave Release: 86,300 cfs

6/1 Scheduled Release: 85,000 cfs

Big Bend Dam (SD)

5/31 Pool Elev: 1419.00 ft-msl

24-hr change: -0.23'

5/31 Ave Inflow: 83,000 cfs

5/31 Ave Release: 83,900 cfs

6/1 Scheduled Release: 84,500 cfs

Fort Randall Dam (SD)

5/31 Pool Elev: 1359.90 ft-msl

24-hr change: 0.39'

5/31 Ave Inflow: 94,000 cfs

5/31 Ave Release: 76,600 cfs

6/1 Scheduled Release: 81,000 cfs

Gavins Point Dam (NE-SD)

5/31 Pool Elev: 1206.45 ft-msl

24-hr change: -0.15'

5/31 Ave Inflow: 76,000 cfs

5/31 Ave Release: 77,000 cfs

6/1 Scheduled Release: 81,000 cfs

Classification: UNCLASSIFIED
Caveats: NONE

Classification: UNCLASSIFIED
Caveats: NONE

[redacted]

From: Farhat, Jody S NWD02
Sent: Wednesday, June 01, 2011 4:50 PM
To: Ruch, Robert J COL NWO; [redacted], Hofmann, Anthony J COL NWK; [redacted]
Cc: [redacted]
Subject: FW: WM Update for the CG (UNCLASSIFIED)
Attachments: NWD Missouri Basin Update - 061111.pptx

Classification: UNCLASSIFIED
Caveats: NONE

All - this is the first cut on this new product, subject to change as folks get a minute to double check historic data including gage datums.

Jody

-----Original Message-----
From: [redacted]
Sent: Wednesday, June 01, 2011 1:05 PM
To: Tipton, Robert A Col NWD
Subject: RE: WM Update for the CG (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

First 2 slides updated on attached.

-----Original Message-----
From: Tipton, Robert A Col NWD
Sent: Wednesday, June 01, 2011 11:39 AM
To: Farhat, Jody S NWD02
Subject: WM Update for the CG

Jody,

Attached is how the CG would like to get the updates. The second two slides will not change after we get the travel times in and the first two would only change for the Current Stage as of that day and the Projected date of hitting the highest stages based on change conditions...as well as the ranges of course if that changes as well. All the rest of it is the same.

Don't worry about cleaning it up - just send it back to me with the first cut of the data (even if you just give me the travel times in a chart...we will add that on to the map slides) and we will clean it up on this end. I think once we get this set, it shouldn't be too hard to keep updated for the boss.

RT

Robert A. Tipton, P.E.
COL, EN
Deputy Commander
Northwestern Division

[redacted]

Classification: UNCLASSIFIED
Caveats: NONE

Classification: UNCLASSIFIED
Caveats: NONE

Missouri River Basin Stages

1 June 2011

US Army Corps of Engineers
BUILDING STRONG®

	Station	Flood Stage	Current Stage	Likely Range of Highest* Flows/Stages		Projected Date **	Record Stage (Year)
A	Bismarck	16	15.8	150 kcfs 20.6		June 19	
B	Pierre	15	15.2	150 kcfs 18.7		June 7	
C	Yankton	20	19.4	150 kcfs n/a	 Na/	June 14	
D	Sioux City	30	28	170 kcfs 35	200 kcfs 37	June 15	44.28 (1952)
E	Decatur	35	33.1	175 kcfs 40	205 kcfs 42	June 15	43.5 (1943)
)F	Blair	29	27.6	175 kcfs 30	205 kcfs 32	June 15	27.48 (1984)
G	Omaha	29	29.2	175 kcfs 34	210 kcfs 36	June 16	40.2 (1952)
H	Nebraska City	18	22.9	200 kcfs 27	250 kcfs 28+	June 16	27.19 (1993)
I	Brownville	33	39.1	205 kcfs 43	270 kcfs 44+	June 16	44.3 (1993)
J	Rulo	17	22.8	210 kcfs 25.5	290 kcfs 27+	June 17	26.63 (2010)
K	St. Joseph	17	21.8	215 kcfs 27	320 kcfs 32	June 17	32.07 (1993)
L	Atchison	22	24.9	215 kcfs 30	320 kcfs 34	June 17	31.63 (1993)
M	Leavenworth	20	20.9	215 kcfs 27	320 kcfs 33	June 17	35.34 (1993)

Missouri River Basin Stages

1 June 2011

US Army Corps of Engineers
BUILDING STRONG®

	Station	Flood Stage	Current Stage	Likely Range of Highest* Flows/Stages		Projected Date **	Record Stage (Year)
N	Kansas City	32	24.4	220 kcfs 30	350 kcfs 39	June 18	48.87 (1993)
O	Sibley	22	23.2	220 kcfs 28	350 kcfs 33	June 18	40.6 (1952)
P	Napoleon	17	20.2	220 kcfs 25	350 kcfs 29	June 18	26.7 (1993)
Q	Waverly	20	22.9	230 kcfs 27	370 kcfs 31	June 18	31.15 (1993)
R	Miami	18	21.5	235 kcfs 26	370 kcfs 30	June 19	32.6 (1993)
S	Glasgow	25	24.9	250 kcfs 32	410 kcfs 37	June 19	39.5 (1993)
T	Boonville	21	21.9	260 kcfs 27	420 kcfs 33	June 19	37.1 (1993)
U	Jefferson City	23	21.1	260 kcfs 27	430 kcfs 35	June 19	38.3 (1993)
V	Chamois	17	18	290 kcfs 24	450 kcfs 29	June 19	33.3 (1993)
W	Gasconade	22	25	300 kcfs 30	470 kcfs 35	June 19	39.6 (1993)
X	Hermann	21	22.6	300 kcfs 27	470 kcfs 33	June 20	36.97 (1993)
Y	Washington	20	19	300 kcfs 23	470 kcfs 32	June 20	35.4 (1993)
Z	St. Charles	25	25.4	300 kcfs 28	470 kcfs 37	June 20	40.04 (1993)

[redacted]

From: Farhat, Jody S NWD02
Sent: Wednesday, June 01, 2011 5:11 PM
To: [redacted]
Subject: RE: new question we don't have answer on (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

We'll be at these maximum flow at least through July. High flows through the end of the year.

-----Original Message-----
From: [redacted]
Sent: Wednesday, June 01, 2011 4:49 PM
To: [redacted] Farhat, Jody S NWD02
Subject: new question we don't have answer on

How long do we expect heightened water? Gavin's point shows 150kfc through July. What should be our canned answer at this point?

[redacted]
Chief of Planning
Congressional Liaison
US Army Corps of Engineers
Omaha District
1616 Capitol Avenue
Omaha, NE 68102-4901
[redacted]

Classification: UNCLASSIFIED
Caveats: NONE

[redacted]

From: Farhat, Jody S NWD02
Sent: Wednesday, June 01, 2011 5:40 PM
To: [redacted]
Cc:
Subject: RE: JIC Questions (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

[redacted]

1. Did the Corps make a mistake by not releasing water in time to prepare for the flood event?
No, the full flood control capacity of the reservoir system was available at the start of the runoff season. This flood event was due to extraordinary rainfall in eastern Montana, Northern Wyoming and the western Dakota in May combined with additional mountain snowpack accumulation to record levels and a delayed melt. Our May 1 forecast which included projected snowmelt called for peak releases of 49,000 cfs from Garrison, 54,000 cfs from Oahe and 57,000 cfs from Gavins Point.

2. Will this change the way it's done in future years?
The reservoir system was operated in accordance with the Master Manual. The Master Manual Review and Update study analyzed the potential to provide additional flood control storage by lowering the top of the Carryover Multiple Use Zone. That alternative was studied but not selected.

3. Rumor in South Dakota is this is human error by the Corps No, the reservoir system has been operated in accordance with the Master Manual. This is a record runoff event.

4. What were the spring releases?
From which project and for what period of time?

-----Original Message-----
From: [redacted]
Sent: Wednesday, June 01, 2011 5:10 PM
To: Farhat, Jody S NWD02
Subject: [redacted]

Classification: UNCLASSIFIED
Caveats: NONE

Hi Jody,

Chet Broakaw of the Associated Press would like some questions answered off line from the conference call today.

1. Did the Corps make a mistake by not releasing water in time to prepare for the flood event?

2. Will this change the way it's done in future years?

3. Rumor in South Dakota is this is human error by the Corps

4. What were the spring releases?

He'd like this information by today. Let me know what you do/say so I can close this query out.

Thanks [redacted]

Classification: UNCLASSIFIED
Caveats: NONE

Classification: UNCLASSIFIED
Caveats: NONE

[redacted]

From: Farhat, Jody S NWD02
Sent: Wednesday, June 01, 2011 5:43 PM
To: [redacted]
Cc: [redacted]
Subject: RE: Voice Message from Unknown (3127504147) (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

The current schedule is holding for now. We'll let you know if we foresee any significant changes.

-----Original Message-----
From: [redacted]
Sent: Wednesday, June 01, 2011 4:32 PM
To: Farhat, Jody S NWD02
Cc: [redacted]
Subject: FW: Voice Message from Unknown (3127504147) (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

I'm going to pass this one off to you. I'm at Dakota Dunes. If you have anything in the next 7 days that even remotely looks like a change in the forecast I would really appreciate a heads up. We are shooting for 1100 ft on both levee systems by next Tuesday. Which should give us 1+ ft of freeboard. If the modeled stages are correct, would should sneak by and not overtop. If the levee will hold from the high stage differential us another question.

Thanks, [redacted]

-----Original Message-----
From: Unity Messaging System - NWOUNITY1
Sent: Wednesday, June 01, 2011 10:49 AM
To: Boyd, Paul M NWO
Subject: Voice Message from Unknown (3127504147)

Classification: UNCLASSIFIED
Caveats: NONE

Classification: UNCLASSIFIED
Caveats: NONE

[redacted]

From: Farhat, Jody S NWD02
Sent: Wednesday, June 01, 2011 7:04 PM
To: Tipton, Robert A Col NWD; [redacted]ve, Raymond E MAJ NWD
Cc: [redacted]
Subject: RE: WM Update (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

Sir - I've asked [redacted] to update it for you daily. Please let him know what time you need it.

-----Original Message-----
From: Tipton, Robert A Col NWD
Sent: Wednesday, June 01, 2011 6:03 PM
To: [redacted]; Love, Raymond E MAJ NWD; Farhat, Jody S NWD02
Subject: WM Update

Team,

The CG likes the stage report that was prepared for him to day and attached below. Ray, please work with Jody on how we can work this smart to get it updated on a daily basis and we will also use this to keep HQUSACE updated as well.

Jody - my thoughts are that you could just use this format on your website in lieu of the one you posted and we could just pull it from that site...I know this is a little more information than you were posting before, but this is what we need to feed the beast...seems to me that this may be the most efficient way of doing it.

[redacted] Please discuss with Jody the best way to do this. This report will be used by the CG, included in the nightly SITREP and by our congressional liaison folks. The attached report can be included in tonight's SITREP

RT

Robert A. Tipton, P.E.
COL, EN
Deputy Commander
Northwestern Division
U.S. Army Corps of Engineers
[redacted]

Classification: UNCLASSIFIED
Caveats: NONE

[redacted] NWO

From: [redacted] NWO
Sent: Wednesday, June 01, 2011 11:52 PM
To: Farhat, Jody S NWD02
Cc: [redacted] NWD02
Subject: RE: Voice Message from Unknown [redacted]) (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

Be the first to know!

We awarded the second levee contract at Dakota Dunes about 15 minutes ago, turning dirt by Friday, completion of 1100 ft elev. Levee by the time the river reaches 1095.

[redacted]

-----Original Message-----
From: Farhat, Jody S NWD02
Sent: Wednesday, June 01, 2011 5:43 PM
To: [redacted] NWO
Cc: [redacted] NWD02
Subject: RE: Voice Message from Unknown (3127504147) (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

The current schedule is holding for now. We'll let you know if we foresee any significant changes.

-----Original Message-----
From: [redacted] NWO
Sent: Wednesday, June 01, 2011 4:32 PM
To: Farhat, Jody S NWD02
Cc: [redacted] NWD02
Subject: FW: Voice Message from Unknown [redacted]) (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

I'm going to pass this one off to you. I'm at Dakota Dunes. If you have anything in the next 7 days that even remotely looks like a change in the forecast I would really appreciate a heads up. We are shooting for 1100 ft on both levee systems by next Tuesday. Which should give us 1+ ft of freeboard. If the modeled stages are correct, would should sneak by and not overtop. If the levee will hold from the high stage differential us another question.

Thanks, [redacted]

-----Original Message-----
From: Unity Messaging System - NWOUNITY1
Sent: Wednesday, June 01, 2011 10:49 AM
To: [redacted] M NWO
Subject: Voice Message from Unknown [redacted])

Classification: UNCLASSIFIED
Caveats: NONE

Classification: UNCLASSIFIED
Caveats: NONE

Classification: UNCLASSIFIED
Caveats: NONE

[redacted] NWO

From: Blechinger, Erik T NWO
Sent: Wednesday, June 01, 2011 9:14 PM
To: [redacted] NWD; Ruch, Robert J COL NWO
Cc: Farhat, Jody S NWD02
Subject: Re: Meeting with SEN John Thune (SD) (UNCLASSIFIED)

Ditto!

Message sent via my BlackBerry Wireless Device

----- Original Message -----
From: [redacted] NWD
To: Ruch, Robert J COL NWO; Blechinger, Erik T NWO
Cc: Farhat, Jody S NWD02
Sent: Wed Jun 01 19:09:50 2011
Subject: Re: Meeting with SEN John Thune (SD) (UNCLASSIFIED)

Thanks!

Message sent via my BlackBerry Wireless Device

----- Original Message -----
From: Ruch, Robert J COL NWO
To: [redacted] NWD; Blechinger, Erik T NWO
Cc: Farhat, Jody S NWD02
Sent: Wed Jun 01 18:54:39 2011
Subject: Re: Meeting with SEN John Thune (SD) (UNCLASSIFIED)

Erik - Kim is working #4 for you.
V/R,
COL Bob Ruch
Message sent via my BlackBerry Wireless Device

----- Original Message -----
From: [redacted] NWD
To: Ruch, Robert J COL NWO; Blechinger, Erik T NWO
Cc: Farhat, Jody S NWD02
Sent: Wed Jun 01 18:40:50 2011
Subject: FW: Meeting with SEN John Thune (SD) (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

Bob and Erik, I talked with Jody about a 4 piece content briefing for T2, and then a short derivative he could use with Sen Thune:

1. System context - map, auth purposes, res. Zones, master manual, etc.
2. 2011 water conditions - the data showing the anomaly going on 3. 2011 operations - WM operation addressing the hydrology 4. Mitigation actions - i.e. what the Districts are doing in EM

Jody will pull together the first three components. Can you lay out the 4th part Erik? A set of key talking points/messages would help also.

M1 will see T2 on Friday and would like to have what we can provide by then, i.e. COB tomorrow.

We'll seek an hour to brief T2 Monday by phone.

Welcome any thoughts on content.

Happy to discuss. Thanks,

Witt

-----Original Message-----
From: McMahon, John R BG NWD
Sent: Wednesday, June 01, 2011 3:35 PM
To: [redacted] HQ02; Temple, Bo M MG HQ02; [redacted] NWD; Ruch, Robert J COL NWO; Farhat, Jody S NWD02
Cc: Grisoli, William T MG HQ02; [redacted] HQ02; [redacted] HQ; [redacted] HQ02; [redacted] NWK
Subject: Re: Meeting with SEN John Thune (SD) (UNCLASSIFIED)

Team:
Thanks.
MG Grisoli and I chatted about this today--Witt Anderson has the lead in prepping MG Temple for this including RAH--will need 1 hour with MG Temple to provide background, system context, specific talking points to be responsive to SEN Thune's query. I am on the net and travelling in the Missouri Basin so will participate in the prep session. Lisa--please set up 1hr with DCG asap--RAH will follow. Thanks.
Vr/John McMahon

From: Greer, Jennifer A HQ02
To: Temple, Bo M MG HQ02
Cc: Grisoli, William T MG HQ02; [redacted] HQ02; McMahon, John R BG NWD; [redacted] HQ; [redacted] HQ02; [redacted] NWK
Sent: Wed Jun 01 09:54:25 2011
Subject: Meeting with SEN John Thune (SD) (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

Sir - SEN Thune has requested a meeting with you next week to discuss the flooding situation in South Dakota.

After working with Marie Arthur, it appears that the best time for you (with the times they offered) is 1430 on Wednesday, 8 June. I expect the office call to last no longer than 30 minutes.

I will try to get some additional information, but one of the items his staff did mention their frustration on the release of water (now versus earlier?).

[redacted]: please work with NWD as we will need a readahead prepared. If you can get me the flooding information, etc., I can complete the readahead with the logistics and also the bio, etc.

I assume that MG Temple will speak with BG McMahon before the meeting for the latest updates.

Thanks, Jen

[redacted]

Chief, Future Directions Branch/Civil Works

[redacted] (desk)

[redacted] (cell)

[redacted] (fax)

Classification: UNCLASSIFIED
Caveats: NONE

Classification: UNCLASSIFIED
Caveats: NONE

[redacted] NWO

From: [redacted] NWD
Sent: Wednesday, June 01, 2011 9:10 PM
To: Ruch, Robert J COL NWO; Blechinger, Erik T NWO
Cc: Farhat, Jody S NWD02
Subject: Re: Meeting with SEN John Thune (SD) (UNCLASSIFIED)

Thanks!

Message sent via my BlackBerry Wireless Device

----- Original Message -----
From: Ruch, Robert J COL NWO
To: [redacted] NWD; Blechinger, Erik T NWO
Cc: Farhat, Jody S NWD02
Sent: Wed Jun 01 18:54:39 2011
Subject: Re: Meeting with SEN John Thune (SD) (UNCLASSIFIED)

Erik - Kim is working #4 for you.
V/R,
COL Bob Ruch
Message sent via my BlackBerry Wireless Device

----- Original Message -----
From: [redacted] NWD
To: Ruch, Robert J COL NWO; Blechinger, Erik T NWO
Cc: Farhat, Jody S NWD02
Sent: Wed Jun 01 18:40:50 2011
Subject: FW: Meeting with SEN John Thune (SD) (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

Bob and Erik, I talked with Jody about a 4 piece content briefing for T2, and then a short derivative he could use with Sen Thune:

1. System context - map, auth purposes, res. Zones, master manual, etc.
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Jody will pull together the first three components. Can you lay out the 4th part Erik? A set of key talking points/messages would help also.

M1 will see T2 on Friday and would like to have what we can provide by then, i.e. COB tomorrow.

We'll seek an hour to brief T2 Monday by phone.

Welcome any thoughts on content.

Happy to discuss. Thanks,

Witt

-----Original Message-----
From: McMahon, John R BG NWD
Sent: Wednesday, June 01, 2011 3:35 PM
To: [redacted] HQ02; Temple, Bo M MG HQ02; [redacted] NWD; Ruch, Robert J COL NWO; Farhat, Jody S NWD02
Cc: Grisoli, William T MG HQ02; [redacted] HQ02; [redacted] HQ; [redacted] HQ02; [redacted] NWK
Subject: Re: Meeting with SEN John Thune (SD) (UNCLASSIFIED)

Team:
Thanks.
MG Grisoli and I chatted about this today--Witt Anderson has the lead in prepping MG Temple for this including RAH--will need 1 hour with MG Temple to provide background, system context, specific talking points to be responsive to SEN Thune's query. I am on the net and travelling in the Missouri Basin so will participate in the prep session. Lisa--please set up 1hr with DCG asap--RAH will follow. Thanks.
Vr/John McMahon

From: [redacted] HQ02
To: Temple, Bo M MG HQ02
Cc: Grisoli, William T MG HQ02; [redacted] HQ02; McMahon, John R BG NWD; [redacted] HQ; [redacted] HQ02; [redacted] NWK
Sent: Wed Jun 01 09:54:25 2011
Subject: Meeting with SEN John Thune (SD) (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

Sir - SEN Thune has requested a meeting with you next week to discuss the flooding situation in South Dakota.

After working with [redacted], it appears that the best time for you (with the times they offered) is 1430 on Wednesday, 8 June. I expect the office call to last no longer than 30 minutes.

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Thanks, [redacted]

[redacted]

Chief, Future Directions Branch/Civil Works

[redacted] (desk)

[redacted] (cell)

[redacted] (fax)

Classification: UNCLASSIFIED
Caveats: NONE

Classification: UNCLASSIFIED
Caveats: NONE

[redacted] NWO

From: Ruch, Robert J COL NWO
Sent: Wednesday, June 01, 2011 8:55 PM
To: [redacted] NWD; Blechinger, Erik T NWO
Cc: Farhat, Jody S NWD02
Subject: Re: Meeting with SEN John Thune (SD) (UNCLASSIFIED)

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From: [redacted] HQ02
To: Temple, Bo M MG HQ02
Cc: Grisoli, William T MG HQ02; [redacted] HQ02; McMahon, John R BG NWD; [redacted] HQ; [redacted] HQ02; [redacted] NWK
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Thanks, Jen

[redacted]

Chief, Future Directions Branch/Civil Works

[redacted] (desk)

[redacted] (cell)

[redacted] (fax)

Classification: UNCLASSIFIED
Caveats: NONE

Classification: UNCLASSIFIED
Caveats: NONE

[redacted] NWO

From: [redacted] NWD
Sent: Wednesday, June 01, 2011 8:41 PM
To: Ruch, Robert J COL NWO; Blechinger, Erik T NWO
Cc: Farhat, Jody S NWD02
Subject: FW: Meeting with SEN John Thune (SD) (UNCLASSIFIED)

Classification: UNCLASSIFIED
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Cc: Grisoli, William T MG HQ02; [redacted] HQ02; [redacted] HQ; [redacted] HQ02; [redacted] NWK
Subject: Re: Meeting with SEN John Thune (SD) (UNCLASSIFIED)

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Cc: Grisoli, William T MG HQ02; [redacted] HQ02; McMahon, John R BG NWD; [redacted] HQ; [redacted] HQ02; [redacted] NWK
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Thanks, Jen

[redacted]

Chief, Future Directions Branch/Civil Works

[redacted] (desk)

[redacted] (cell)

[redacted] (fax)

Classification: UNCLASSIFIED
Caveats: NONE

[redacted] NWO

From: Tipton, Robert A Col NWD
Sent: Wednesday, June 01, 2011 7:31 PM
To: Farhat, Jody S NWD02; [redacted] NWD; [redacted] NWD
Cc: [redacted] NWO
Subject: RE: WM Update (UNCLASSIFIED)

Thanks Jody....

My thoughts are that we will take it at the best time of the day that makes sense for you to update it (and you can't say there is no sensible time :)). We really need this probably before 1000 PST or 1300 CST daily....but again, if your battle rhythm makes is better to do it a little later, we can live with that as well as long as we are consistent with the as of time.

Ray/John - what any thought on this?

Robert A. Tipton, P.E.
COL, EN
Deputy Commander
Northwestern Division
U.S. Army Corps of Engineers

503-808-3701

-----Original Message-----
From: Farhat, Jody S NWD02
Sent: Wednesday, June 01, 2011 5:04 PM
To: Tipton, Robert A Col NWD; [redacted] NWD; [redacted] NWD
Cc: [redacted] NWO
Subject: RE: WM Update (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

Sir - I've asked Roy McAllister to update it for you daily. Please let him know what time you need it.

-----Original Message-----
From: Tipton, Robert A Col NWD
Sent: Wednesday, June 01, 2011 6:03 PM
To: [redacted] NWD; [redacted] NWD; Farhat, Jody S NWD02
Subject: WM Update

Team,

The CG likes the stage report that was prepared for him to day and attached below. Ray, please work with Jody on how we can work this smart to get it updated on a daily basis and we will also use this to keep HQUSACE updated as well.

Jody - my thoughts are that you could just use this format on your website in lieu of the one you posted and we could just pull it from that site...I know this is a little more information than you were posting before, but this is what we need to feed the beast...seems to me that this may be the most efficient way of doing it.

John - Please discuss with Jody the best way to do this. This report will be used by the CG, included in the nightly SITREP and by our congressional liaison folks. The attached report can be included in tonight's SITREP

RT

Robert A. Tipton, P.E.
COL, EN
Deputy Commander
Northwestern Division
U.S. Army Corps of Engineers

503-808-3701

Classification: UNCLASSIFIED
Caveats: NONE

[redacted] NWO

From: [redacted] NWK
Sent: Wednesday, June 01, 2011 6:23 PM
To: Farhat, Jody S NWD02
Cc: [redacted] NWD02
Subject: FW: WM Update for the CG (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

Jody,

Are we supposed to use this in our briefs or is this just for your briefs to the CG?

Just noted a couple items.

According to NWS site:
Blair floodstage is 26.5, peak stage is 27.53 (1969) Nebraska City peak stage is 27.66 (1952)
Napoleon Peak Stage is 28.86 (2007)

[redacted]

-----Original Message-----
From: Farhat, Jody S NWD02
Sent: Wednesday, June 01, 2011 4:50 PM
To: Ruch, Robert J COL NWO; [redacted] NWD; [redacted] NWD; Hofmann, Anthony J COL NWK; Blechinger, Erik T NWO; [redacted] NWO; [redacted] NWO; [redacted] NWO; [redacted] NWK; [redacted] NWK; [redacted] NWK; Bertino, John J Jr NWO; [redacted] NWK
Cc: DLL-CENWD-PDR
Subject: FW: WM Update for the CG (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

All - this is the first cut on this new product, subject to change as folks get a minute to double check historic data including gage datums.

Jody

-----Original Message-----
From: Farhat, Jody S NWD02
Sent: Wednesday, June 01, 2011 1:05 PM
To: Tipton, Robert A Col NWD
Subject: RE: WM Update for the CG (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

First 2 slides updated on attached.

-----Original Message-----
From: Tipton, Robert A Col NWD
Sent: Wednesday, June 01, 2011 11:39 AM
To: Farhat, Jody S NWD02

Subject: WM Update for the CG

Jody,

Attached is how the CG would like to get the updates. The second two slides will not change after we get the travel times in and the first two would only change for the Current Stage as of that day and the Projected date of hitting the highest stages based on change conditions...as well as the ranges of course if that changes as well. All the rest of it is the same.

Don't worry about cleaning it up - just send it back to me with the first cut of the data (even if you just give me the travel times in a chart...we will add that on to the map slides) and we will clean it up on this end. I think once we get this set, it shouldn't be too hard to keep updated for the boss.

RT

Robert A. Tipton, P.E.
COL, EN
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503-808-3701

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Caveats: NONE

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Caveats: NONE

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Caveats: NONE

[redacted] NWO

From: Tipton, Robert A Col NWD
Sent: Wednesday, June 01, 2011 6:03 PM
To: [redacted] NWD; [redacted] NWD; Farhat, Jody S NWD02
Subject: WM Update
Attachments: NWD Missouri Basin Update 061111.pptx

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503-808-3701

Missouri River Basin Stages

AS OF: 1 June 2011

US Army Corps of Engineers
BUILDING STRONG®

	Station	Flood Stage	Current Stage	Likely Range of Highest* Flows/Stages		Projected Date **	Record Stage (Year)
A	Bismarck	16	15.8	150 kcfs	n/a	June 19	
				20.6	n/a		
B	Pierre	15	15.2	150 kcfs	n/a	June 7	
				18.7	n/a		
C	Yankton	20	19.4	150 kcfs	n/a	June 14	
				n/a	n/a		
D	Sioux City	30	28	170 kcfs	200 kcfs	June 15	44.28 (1952)
				35	37		
E	Decatur	35	33.1	175 kcfs	205 kcfs	June 15	43.5 (1943)
				40	42		
)F	Blair	29	27.6	175 kcfs	205 kcfs	June 15	27.48 (1984)
				30	32		
G	Omaha	29	29.2	175 kcfs	210 kcfs	June 16	40.2 (1952)
				34	36		
H	Nebraska City	18	22.9	200 kcfs	250 kcfs	June 16	27.19 (1993)
				27	28+		
I	Brownville	33	39.1	205 kcfs	270 kcfs	June 16	44.3 (1993)
				43	44+		
J	Rulo	17	22.8	210 kcfs	290 kcfs	June 17	26.63 (2010)
				25.5	27+		
K	St. Joseph	17	21.8	215 kcfs	320 kcfs	June 17	32.07 (1993)
				27	32		
L	Atchison	22	24.9	215 kcfs	320 kcfs	June 17	31.63 (1993)
				30	34		
M	Leavenworth	20	20.9	215 kcfs	320 kcfs	June 17	35.34 (1993)
				27	33		

Missouri River Basin Stages

AS OF: 1 June 2011

US Army Corps of Engineers
BUILDING STRONG®

	Station	Flood Stage	Current Stage	Likely Range of Highest* Flows/Stages		Projected Date **	Record Stage (Year)
N	Kansas City	32	24.4	220 kcfs 30	350 kcfs 39	June 18	48.87 (1993)
O	Sibley	22	23.2	220 kcfs 28	350 kcfs 33	June 18	40.6 (1952)
P	Napoleon	17	20.2	220 kcfs 25	350 kcfs 29	June 18	26.7 (1993)
Q	Waverly	20	22.9	230 kcfs 27	370 kcfs 31	June 18	31.15 (1993)
R	Miami	18	21.5	235 kcfs 26	370 kcfs 30	June 19	32.6 (1993)
S	Glasgow	25	24.9	250 kcfs 32	410 kcfs 37	June 19	39.5 (1993)
T	Boonville	21	21.9	260 kcfs 27	420 kcfs 33	June 19	37.1 (1993)
U	Jefferson City	23	21.1	260 kcfs 27	430 kcfs 35	June 19	38.3 (1993)
V	Chamois	17	18	290 kcfs 24	450 kcfs 29	June 19	33.3 (1993)
W	Gasconade	22	25	300 kcfs 30	470 kcfs 35	June 19	39.6 (1993)
X	Hermann	21	22.6	300 kcfs 27	470 kcfs 33	June 20	36.97 (1993)
Y	Washington	20	19	300 kcfs 23	470 kcfs 32	June 20	35.4 (1993)
Z	St. Charles	25	25.4	300 kcfs 28	470 kcfs 37	June 20	40.04 (1993)

[redacted] NWO

From: [redacted] NWD
Sent: Wednesday, June 01, 2011 6:02 PM
To: Farhat, Jody S NWD02
Subject: FW: Meeting with SEN John Thune (SD) (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

Jody, I'd like to discuss as soon as you have a chance - Boss and I talked thru. Obviously, you are key, both for basic info and session with T2.

Thanks,

[redacted]

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From: McMahon, John R BG NWD
Sent: Wednesday, June 01, 2011 3:46 PM
To: [redacted] NWD
Subject: FW: Meeting with SEN John Thune (SD) (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

Witt:
How soon can we get something together--I can at least begin to set conditions on Fri with any follow up thru you. Thanks!
VR, John

-----Original Message-----
From: Temple, Bo M MG HQ02
Sent: Wednesday, June 01, 2011 3:40 PM
To: McMahon, John R BG NWD
Cc: [redacted] HQ02
Subject: Re: Meeting with SEN John Thune (SD) (UNCLASSIFIED)

John, hope to see you at SPD Frid AM. Rec our XOs wicker a time and location since we'll be in San Fran then anyway. Thoughts?.

From: McMahon, John R BG NWD
To: [redacted] HQ02; Temple, Bo M MG HQ02; [redacted] NWD; Ruch, Robert J COL NWO; Farhat, Jody S NWD02
Cc: Grisoli, William T MG HQ02; [redacted] HQ02; [redacted] HQ; [redacted] HQ02; [redacted] NWK
Sent: Wed Jun 01 17:34:39 2011
Subject: Re: Meeting with SEN John Thune (SD) (UNCLASSIFIED)

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To: Temple, Bo M MG HQ02
Cc: Grisoli, William T MG HQ02; [redacted] HQ02; McMahon, John R BG NWD; [redacted] HQ; [redacted] HQ02; [redacted] NWK
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[redacted]

Chief, Future Directions Branch/Civil Works

[redacted] (desk)

[redacted] (cell)

[redacted] (fax)

Classification: UNCLASSIFIED
Caveats: NONE

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[redacted] NWO

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[redacted]

Chief, Future Directions Branch/Civil Works

[redacted] (desk)

[redacted] (cell)

[redacted] (fax)

Classification: UNCLASSIFIED
Caveats: NONE

[redacted] NWO

From: [redacted] NWK
Sent: Wednesday, June 01, 2011 5:10 PM
To: Farhat, Jody S NWD02
Subject: JIC Questions (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

Hi Jody,

Chet Broakaw of the Associated Press would like some questions answered off line from the conference call today.

1. Did the Corps make a mistake by not releasing water in time to prepare for the flood event?

2. Will this change the way it's done in future years?

3. Rumor in South Dakota is this is human error by the Corps

4. What were the spring releases?

He'd like this information by today. Let me know what you do/say so I can close this query out.

Thanks -[redacted]

Classification: UNCLASSIFIED
Caveats: NONE

[redacted] NWO

From: [redacted] NWO
Sent: Wednesday, June 01, 2011 5:07 PM
To: [redacted] NWO; Farhat, Jody S NWD02
Subject: Re: mainstem data for NWO sitrep (UNCLASSIFIED)

This is done for today. Please start tomorrow.

Thanks

----- Original Message -----
From: [redacted] NWO
To: Farhat, Jody S NWD02; [redacted] NWO; [redacted] NWD02; [redacted] D NWD02
Cc: CENWO-EOC NWO; [redacted] NWO; [redacted] NWO; [redacted] NWO; [redacted] NWO; [redacted] NWO; [redacted] NWO; [redacted] NWO; [redacted] NWO; Williamson, Eileen L NWO; [redacted] NWO
Sent: Wed Jun 01 14:31:52 2011
Subject: RE: mainstem data for NWO sitrep (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

Already working on the spreadsheet with the data included as requested.

[redacted]

-----Original Message-----
From: Farhat, Jody S NWD02
Sent: Wednesday, June 01, 2011 4:24 PM
To: [redacted] NWO; [redacted] NWD02; [redacted] NWD02; [redacted], [redacted] Jr NWO
Cc: CENWO-EOC NWO; [redacted] NWO; [redacted] NWO; [redacted] NWO; [redacted] NWO; [redacted] NWO; [redacted] NWO; [redacted] NWO; [redacted] NWO; Williamson, Eileen L NWO; [redacted] NWO
Subject: RE: mainstem data for NWO sitrep (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

[redacted] is updating our situation report every day so let's have him fulfill this data request too.

Jody

-----Original Message-----
From: [redacted] NWO
Sent: Wednesday, June 01, 2011 4:18 PM
To: [redacted] NWD02; [redacted] NWD02; [redacted] NWO
Cc: CENWO-EOC NWO; [redacted] NWO; [redacted] NWO; [redacted] NWO; [redacted] NWO; [redacted] NWO; [redacted] NWO; [redacted] NWO; [redacted] NWO; Williamson, Eileen L NWO; Farhat, Jody S NWD02; [redacted] NWO
Subject: mainstem data for NWO sitrep (UNCLASSIFIED)

Classification: UNCLASSIFIED

Caveats: NONE

[redacted]

I request that your office to begin providing the mainstem dam data below for the NWO sit rep. Our office is having a hard time staying up on the changes and making sure we have accurate data. Please provide the following to the email address CENWO-EOC by 1600 daily. Information cutoff is 1400.

We have been attaching these two documents at EM's request. If you would like to use them [redacted] or [redacted] can hook you up. [redacted] is also developing this mainstem star office bulletin to include recent hourly data.

Please contact Alex if you have other questions.

Thanks,
[redacted]

****

Missouri River Mainstem Reservoirs:

Following is a link to the mainstem regulation forecast. Refresh to obtain the most recent copy if you keep this link open.

http://www.nwd-mr.usace.army.mil/rcc/reports/twout.html

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Fort Peck Dam (MT)

5/31 Pool Elev: 2248.93 ft-msl

24-hr change: 0.52'

5/31 Ave Inflow: 78,000 cfs

5/31 Ave Release: 9,700 cfs

6/1 Scheduled Release: 10,000 cfs

Garrison Dam (ND)

5/31 Pool Elev: 1853.34 ft-msl

24-hr change: 0.21'

5/31 Ave Inflow: 137,000 cfs

5/31 Ave Release: 85,500 cfs

6/1 Scheduled Release: 100,000 cfs

Oahe Dam (SD)

5/31 Pool Elev: 1618.76 ft-msl

24-hr change: 0.15'

5/31 Ave Inflow: 103,000 cfs

5/31 Ave Release: 86,300 cfs

6/1 Scheduled Release: 85,000 cfs

Big Bend Dam (SD)

5/31 Pool Elev: 1419.00 ft-msl

24-hr change: -0.23'

5/31 Ave Inflow: 83,000 cfs

5/31 Ave Release: 83,900 cfs

6/1 Scheduled Release: 84,500 cfs

Fort Randall Dam (SD)

5/31 Pool Elev: 1359.90 ft-msl

24-hr change: 0.39'

5/31 Ave Inflow: 94,000 cfs

5/31 Ave Release: 76,600 cfs

6/1 Scheduled Release: 81,000 cfs

Gavins Point Dam (NE-SD)

5/31 Pool Elev: 1206.45 ft-msl

24-hr change: -0.15'

5/31 Ave Inflow: 76,000 cfs

5/31 Ave Release: 77,000 cfs

6/1 Scheduled Release: 81,000 cfs

Classification: UNCLASSIFIED
Caveats: NONE

Classification: UNCLASSIFIED
Caveats: NONE

Classification: UNCLASSIFIED
Caveats: NONE

[redacted] NWO

From: Farhat, Jody S NWD02
Sent: Wednesday, June 01, 2011 4:50 PM
To: Ruch, Robert J COL NWO; [redacted] NWD; [redacted] NWD; Hofmann, Anthony J COL NWK; Blechinger, Erik T NWO; [redacted] NWO; [redacted] NWO; [redacted] NWO; [redacted] NWK; [redacted] NWK; [redacted] NWK; Bertino, John J Jr NWO; [redacted] NWK
Cc: DLL-CENWD-PDR
Subject: FW: WM Update for the CG (UNCLASSIFIED)
Attachments: NWD Missouri Basin Update - 061111.pptx

Classification: UNCLASSIFIED
Caveats: NONE

All - this is the first cut on this new product, subject to change as folks get a minute to double check historic data including gage datums.

Jody

-----Original Message-----
From: Farhat, Jody S NWD02
Sent: Wednesday, June 01, 2011 1:05 PM
To: Tipton, Robert A Col NWD
Subject: RE: WM Update for the CG (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

First 2 slides updated on attached.

-----Original Message-----
From: Tipton, Robert A Col NWD
Sent: Wednesday, June 01, 2011 11:39 AM
To: Farhat, Jody S NWD02
Subject: WM Update for the CG

Jody,

Attached is how the CG would like to get the updates. The second two slides will not change after we get the travel times in and the first two would only change for the Current Stage as of that day and the Projected date of hitting the highest stages based on change conditions...as well as the ranges of course if that changes as well. All the rest of it is the same.

Don't worry about cleaning it up - just send it back to me with the first cut of the data (even if you just give me the travel times in a chart...we will add that on to the map slides) and we will clean it up on this end. I think once we get this set, it shouldn't be too hard to keep updated for the boss.

RT

Robert A. Tipton, P.E.
COL, EN
Deputy Commander
Northwestern Division

U.S. Army Corps of Engineers

503-808-3701

Classification: UNCLASSIFIED
Caveats: NONE

Classification: UNCLASSIFIED
Caveats: NONE

Missouri River Basin Stages

1 June 2011

US Army Corps of Engineers
BUILDING STRONG®

	Station	Flood Stage	Current Stage	Likely Range of Highest* Flows/Stages		Projected Date **	Record Stage (Year)
A	Bismarck	16	15.8	150 kcfs 20.6		June 19	
B	Pierre	15	15.2	150 kcfs 18.7		June 7	
C	Yankton	20	19.4	150 kcfs n/a	 Na/	June 14	
D	Sioux City	30	28	170 kcfs 35	200 kcfs 37	June 15	44.28 (1952)
E	Decatur	35	33.1	175 kcfs 40	205 kcfs 42	June 15	43.5 (1943)
)F	Blair	29	27.6	175 kcfs 30	205 kcfs 32	June 15	27.48 (1984)
G	Omaha	29	29.2	175 kcfs 34	210 kcfs 36	June 16	40.2 (1952)
H	Nebraska City	18	22.9	200 kcfs 27	250 kcfs 28+	June 16	27.19 (1993)
I	Brownville	33	39.1	205 kcfs 43	270 kcfs 44+	June 16	44.3 (1993)
J	Rulo	17	22.8	210 kcfs 25.5	290 kcfs 27+	June 17	26.63 (2010)
K	St. Joseph	17	21.8	215 kcfs 27	320 kcfs 32	June 17	32.07 (1993)
L	Atchison	22	24.9	215 kcfs 30	320 kcfs 34	June 17	31.63 (1993)
M	Leavenworth	20	20.9	215 kcfs 27	320 kcfs 33	June 17	35.34 (1993)

Missouri River Basin Stages

1 June 2011

US Army Corps of Engineers
BUILDING STRONG®

	Station	Flood Stage	Current Stage	Likely Range of Highest* Flows/Stages		Projected Date **	Record Stage (Year)
N	Kansas City	32	24.4	220 kcfs 30	350 kcfs 39	June 18	48.87 (1993)
O	Sibley	22	23.2	220 kcfs 28	350 kcfs 33	June 18	40.6 (1952)
P	Napoleon	17	20.2	220 kcfs 25	350 kcfs 29	June 18	26.7 (1993)
Q	Waverly	20	22.9	230 kcfs 27	370 kcfs 31	June 18	31.15 (1993)
R	Miami	18	21.5	235 kcfs 26	370 kcfs 30	June 19	32.6 (1993)
S	Glasgow	25	24.9	250 kcfs 32	410 kcfs 37	June 19	39.5 (1993)
T	Boonville	21	21.9	260 kcfs 27	420 kcfs 33	June 19	37.1 (1993)
U	Jefferson City	23	21.1	260 kcfs 27	430 kcfs 35	June 19	38.3 (1993)
V	Chamois	17	18	290 kcfs 24	450 kcfs 29	June 19	33.3 (1993)
W	Gasconade	22	25	300 kcfs 30	470 kcfs 35	June 19	39.6 (1993)
X	Hermann	21	22.6	300 kcfs 27	470 kcfs 33	June 20	36.97 (1993)
Y	Washington	20	19	300 kcfs 23	470 kcfs 32	June 20	35.4 (1993)
Z	St. Charles	25	25.4	300 kcfs 28	470 kcfs 37	June 20	40.04 (1993)

[redacted] NWO

From: [redacted] NWO
Sent: Wednesday, June 01, 2011 4:49 PM
To: [redacted] NWO; Farhat, Jody S NWD02
Subject: new question we don't have answer on

How long do we expect heightened water? Gavin's point shows 150kfc through July. What should be our canned answer at this point?

[redacted]
Chief of Planning
Congressional Liaison
US Army Corps of Engineers
Omaha District
1616 Capitol Avenue
Omaha, NE 68102-4901
[redacted]

[redacted] NWO

From: [redacted] NWO
Sent: Wednesday, June 01, 2011 4:42 PM
To: Blechinger, Erik T NWO
Cc: [redacted] NWO; Schenk, Kathryn M NWO; [redacted] NWO; Farhat, Jody S NWD02; Bertino, John J Jr NWO
Subject: Fort Calhoun and Cooper Nuclear Stations (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

EriK:

As per our conversations, below is a synopsis of my conference call with the NRC, staffs at both OPPD and NPPD, as well as representatives from Iowa and Nebraska.

I first provided the standard brief on the hydrologic conditions that were driving the releases. Everyone seemed to understand it, as there were no questions.

The critical WS Elevations at Fort Calhoun are as follows:

1004 MSL is the elevation that OPPD would have to report an unusual event, which as best I can decipher means the utility needs to start planning contingency measures. We are below this elevation right now, but OPPD is already taking measures like raising access roads, making sure pumps are operational; etc.

1006.4 MSL - This is our calculated WSE. This will over top some roads but will not get into any buildings or impacts any critical systems.

1009 msl - This is the alert stage, where the plant would shut down, but critical systems are operational. We shouldn't get here, and the plant is already shut down for other reasons.

1014 MSL - This is the "impaired plant" elevation. Critical systems are impacted or not operational. Again we shouldn't have a problem.

The critical WS Elevations are Cooper are as follows:

898.6 msl - This is the computed WSE. This is a little tenuous as we do not know how/if levees will be overtopped/fail.

899.0 msl - Unusual event stage. We are not there yet, but NPPD is already taking measures to ensure access, checking pumps, etc.

902.0 msl - This is the alert stage, even though we do not predict getting to this stage NPPD has already implemented emergency measures.

There was no discussion of an impaired plant elevation and Cooper.

No one expressed any real concerns on the phone, but I and the states were asked to drop off the call while the utilities and NRC talked further. I told them that if there were any significant changes in the forecast I would call my contact at the NRC.

Classification: UNCLASSIFIED
Caveats: NONE

[redacted] NWO

From: [redacted] NWO
Sent: Wednesday, June 01, 2011 4:32 PM
To: Farhat, Jody S NWD02; [redacted] NWO; [redacted] NWD02; [redacted] NWD02
Cc: CENWO-EOC NWO; [redacted] NWO; [redacted] NWO; [redacted] NWO; [redacted] NWO; [redacted] NWO; [redacted] NWO; [redacted] NWO; [redacted] NWO; Williamson, Eileen L NWO; [redacted] NWO
Subject: RE: mainstem data for NWO sitrep (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

Already working on the spreadsheet with the data included as requested.

[redacted]

-----Original Message-----
From: Farhat, Jody S NWD02
Sent: Wednesday, June 01, 2011 4:24 PM
To: [redacted] NWO; [redacted] NWD02; [redacted] NWD02; [redacted] NWO
Cc: CENWO-EOC NWO; [redacted] NWO; [redacted] NWO; [redacted] NWO; [redacted] NWO; [redacted] NWO; [redacted] NWO; [redacted] NWO; [redacted] NWO; Williamson, Eileen L NWO; [redacted] NWO
Subject: RE: mainstem data for NWO sitrep (UNCLASSIFIED)

Classification: UNCLASSIFIED
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Jody

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Sent: Wednesday, June 01, 2011 4:18 PM
To: [redacted] NWD02; [redacted] NWD02; [redacted] NWO
Cc: CENWO-EOC NWO; [redacted] NWO; [redacted] NWO; [redacted] NWO; [redacted] NWO; [redacted] NWO; [redacted] NWO; [redacted] NWO; [redacted] NWO; Williamson, Eileen L NWO; Farhat, Jody S NWD02; [redacted] NWO
Subject: mainstem data for NWO sitrep (UNCLASSIFIED)

Classification: UNCLASSIFIED
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[redacted]

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Thanks,
[redacted]

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Classification: UNCLASSIFIED
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Caveats: NONE

[redacted] NWO

From: [redacted] NWO
Sent: Wednesday, June 01, 2011 4:32 PM
To: Farhat, Jody S NWD02
Cc: [redacted] NWD02
Subject: FW: Voice Message from Unknown ([redacted]) (UNCLASSIFIED)
Attachments: VoiceMessage

Classification: UNCLASSIFIED
Caveats: NONE

I'm going to pass this one off to you. I'm at Dakota Dunes. If you have anything in the next 7 days that even remotely looks like a change in the forecast I would really appreciate a heads up. We are shooting for 1100 ft on both levee systems by next Tuesday. Which should give us 1+ ft of freeboard. If the modeled stages are correct, would should sneak by and not overtop. If the levee will hold from the high stage differential us another question.

Thanks, [redacted]

-----Original Message-----
From: Unity Messaging System - NWOUNITY1
Sent: Wednesday, June 01, 2011 10:49 AM
To: [redacted] NWO
Subject: Voice Message from Unknown ([redacted])

Classification: UNCLASSIFIED
Caveats: NONE

[redacted] NWO

From: [redacted] NWO
Sent: Wednesday, June 01, 2011 4:18 PM
To: [redacted] NWD02; [redacted] NWD02; [redacted] NWO
Cc: CENWO-EOC NWO; [redacted] NWO; [redacted] NWO; [redacted] NWO; [redacted] NWO; [redacted] NWO; [redacted] NWO; [redacted] NWO; Williamson, Eileen L NWO; Farhat, Jody S NWO02; [redacted] NWO
Subject: mainstem data for NWO sitrep (UNCLASSIFIED)
Attachments: Pertinent_Mainstem_dam_data_1Jun2011.xlsx; MainstemBulletin_6Jun2011.pdf

Classification: UNCLASSIFIED
Caveats: NONE

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6/1 Scheduled Release: 81,000 cfs

Classification: UNCLASSIFIED
Caveats: NONE

OMAHA DISTRICT DAM INFO AND DAM SAFETY SURVEILLANCE POOL TRIGGERS(As Of: 1 Jun 2011 1100)

		General Information				Elevations (ft-msl)			Current Data						Occupied Storage			Dam Safety Triggers		
Project Symbol	Project	Record Pool	Design Dam Crest	Surcharge	Design Spillway Elevation (crest/top gate)	Top of Mult-Purpose Pool/Conservation	Top of Annual Flood Control Pool	Top of Exclusive Flood Control Pool	Midnight Elevation (ft-msl)	Daily Elevation Change	Storage (ac-ft)	Previous Day Inflow (DSF)	Previous Day Release (DSF)	Current Day Sched Release (DSF)	MP (%)	FC (ac-ft)	FC (%)	Weekly Surveillance	Daily Surveillance	24-HR Surveillance
FP	Fort Peck Dam	2252.0 (1975)	2280.5	2256.1	(2225/2250)	2234.0	2246.0	2250.0	2248.9	0.5	18,193,000	78,000	9,700	10,000	100.0	3,197,316	86.6	2246.0	2250.0	2252.0
GA	Garrison Dam	1854.8 (1975)	1875.0	1858.5	(1825/1854)	1837.5	1850.0	1854.0	1853.3	0.2	23,574,000	137,000	85,500	91,300	100.0	5,464,375	95.7	1850.0	1854.0	1854.8
OA	Oahe Dam	1618.7 (1995)	1660.0	1644.4	(1596.5/1620)	1607.5	1617.0	1620.0	1618.8	0.2	22,725,000	103,000	86,300	85,000	100.0	3,890,965	90.4	1617.5	1618.7	1618.7
BB	Big Bend Dam	1422.1 (1991)	1440.0	1433.6	(1385/1423)	1420.0	1422.0	1423.0	1419.0	-0.2	1,574,000	83,000	83,900	84,500	97.4	0	0.0	1422.0	1422.0	1423.0
FR	Fort Randall Dam	1372.2 (1997)	1395.0	1379.3	(1346/1375)	1350.0	1365.0	1375.0	1359.9	0.4	3,959,000	94,000	76,600	79,700	100.0	834,632	36.4	1365.0	1370.0	1372.0
GP	Gavins Point Dam	1210.7 (1960)	1234.0	1221.4	(1180/1210)	1204.5	1208.0	1210.0	1206.5	-0.2	354,000	76,000	77,000	80,000	100.0	33,029	22.2	1210.0	1210.0	1210.7
SYSTEM											70,379,000									

Note: Pool elevations are previous midnight reading. Inflows and releases are previous day's daily average.

US Army Corps of Engineers
Omaha District

U.S. Army Corps of Engineers, Omaha District
Missouri River Basin
Mainstem Reservoir Bulletin

Bulletin Updated: 6/1/11 11:15 AM

Project	Project Information						Current Data (as of 00:00)					Occupied Storage					
	Elevations (ft msl)			Storage Capacity (ac-ft)						Previous Day Avg.		Multi-Use		Annual FC		Exclusive	
	Top of Multi-Use	Top of Annual FC	Top of Exclusive	Multiple Use	Annual FC	Exclusive	Elevation (ft msl)	Dly Elev. Change	Total Occupied Storage (ac-ft)	Inflow (dsf)	Release (dsf)	(ac-ft)	(%)	(ac-ft)	(%)	(ac-ft)	(%)
TODAY	Project Data Date/Time **6/1/2011**																
Fort Peck	2234.0	2246.0	2250.0	14,788,000	2,704,000	971,000	2248.93	0.52	18,193,000	78,000	9,700	14,788,000	100.0	2,704,000	100.0	701,000	72.2
Garrison	1837.5	1850.0	1854.0	18,110,000	4,222,000	1,489,000	1853.34	0.21	23,574,000	137,000	85,500	18,110,000	100.0	4,222,000	100.0	1,242,000	83.4
Oahe	1607.5	1617.0	1620.0	18,834,000	3,201,000	1,102,000	1618.76	0.15	22,725,000	103,000	86,300	18,834,000	100.0	3,201,000	100.0	690,000	62.6
Big Bend	1420.0	1422.0	1423.0	1,621,000	117,000	60,000	1419.00	-0.23	1,574,000	83,000	83,900	1,574,000	97.1	0	0.0	0	0.0
Fort Randall	1350.0	1365.0	1375.0	3,124,000	1,309,000	985,000	1359.90	0.39	3,959,000	94,000	76,600	3,124,000	100.0	835,000	63.8	0	0.0
Gavins Point	1204.5	1208.0	1210.0	307,000	86,000	57,000	1206.45	-0.15	354,000	76,000	77,000	307,000	100.0	47,000	54.7	0	0.0
System Totals				56,784,000	11,639,000	4,664,000			70,379,000			56,737,000		11,009,000			
YESTERDAY	Project Data Date/Time **5/31/2011**																
Fort Peck	2234.0	2246.0	2250.0	14,788,000	2,704,000	971,000	2248.41	0.75	18,059,000	91,000	9,900	14,788,000	100.0	2,704,000	100.0	567,000	58.4
Garrison	1837.5	1850.0	1854.0	18,110,000	4,222,000	1,489,000	1853.13	0.40	23,480,000	150,000	83,800	18,110,000	100.0	4,222,000	100.0	1,148,000	77.1
Oahe	1607.5	1617.0	1620.0	18,834,000	3,201,000	1,102,000	1618.61	-0.10	22,693,000	114,000	86,200	18,834,000	100.0	3,201,000	100.0	658,000	59.7
Big Bend	1420.0	1422.0	1423.0	1,621,000	117,000	60,000	1419.23	0.04	1,576,000	83,000	82,400	1,576,000	97.2	0	0.0	0	0.0
Fort Randall	1350.0	1365.0	1375.0	3,124,000	1,309,000	985,000	1359.51	0.66	3,925,000	100,000	72,900	3,124,000	100.0	801,000	61.2	0	0.0
Gavins Point	1204.5	1208.0	1210.0	307,000	86,000	57,000	1206.60	0.11	357,000	72,000	74,000	307,000	100.0	50,000	58.1	0	0.0
System Totals				56,784,000	11,639,000	4,664,000			70,090,000			56,739,000		10,978,000			

[redacted] NWO

From: [redacted] NWO
Sent: Wednesday, June 01, 2011 3:43 PM
To: MRJIC; Farhat, Jody S NWD02
Subject: RE: Omaha District tour for FEMA Region VII officials (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

He want to meet with the COL. We need to set up a meeting time. The COL will be here on Friday.

[redacted]
Chief, Readiness Branch
U.S. Army Corps of Engineers - Omaha District
1616 Capitol Ave., Ste 9000
Omaha, NE 68102
[redacted] Office
[redacted] Blackberry
[redacted]@usace.army.mil

-----Original Message-----
From: MRJIC
Sent: Wednesday, June 01, 2011 3:40 PM
To: Farhat, Jody S NWD02
Cc: [redacted] NWO
Subject: FW: Omaha District tour for FEMA Region VII officials (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

Jody: What support do we need here?

[redacted]

-----Original Message-----
From: Poland, Clark [mailto:Clark.Poland@dhs.gov]
Sent: Wednesday, June 01, 2011 3:02 PM
To: MRJIC
Subject: FW: Omaha District tour for FEMA Region VII officials

J. Clark Poland

From: Poland, Clark
Sent: Tuesday, May 31, 2011 7:17 AM
To: 'MRJIC@usace.army.mil'
Subject: Omaha District tour for FEMA Region VII officials

Hi, I'm trying to schedule a tour and a meeting with the Omaha district on behalf of Dan Best, the FEMA Region VII Response Division director. He would like to discuss the increased releases from Gavins Pint as well as the related flooding potential along the Missouri River.

We are trying to schedule a meeting for Friday, June 3rd around 3PM.

I will be in and out of the office and away from email so my best contact information is my personal cell phone:

314.324.5586.

Thanks!

J. Clark Poland

FEMA Region VII

Response Division

9221 Ward Parkway

Kansas City, MO 64114

816.283.7935 Desk

Classification: UNCLASSIFIED
Caveats: NONE

Classification: UNCLASSIFIED
Caveats: NONE

[redacted] NWO

From: Williamson, Eileen L NWO
Sent: Wednesday, June 01, 2011 3:32 PM
To: Williamson, Eileen L NWO; DLL-CENWO-EOC CMT-ALL; [redacted] NWO; [redacted] NWO; [redacted] NWO; [redacted] NWO; [redacted] NWO; [redacted] NWO; Johnston, Paul T HQ@ NWO; Farmer, Monique L NWO; [redacted] NWO; [redacted] NWO; [redacted] NWO; [redacted] NWO; Bertino, John J Jr NWO; [redacted] NWO; [redacted] NWO; Farhat, Jody S NWD02; [redacted] NWO; [redacted] NWO; [redacted] NWO; Tipton, Robert A Col NWD; [redacted] NWO; [redacted] NWD; [redacted] NWK; [redacted] NWK; 'bruce.sullivan@noaa.gov'; 'bruce.terry@noaa.gov'; 'michael.eckert@noaa.gov'; 'robert.kelly@noaa.gov'; [redacted] G NWO; Ruch, Robert J COL NWO; [redacted] NWD; [redacted] NWO; [redacted] NWO; 'bruce.sullivan@noaa.gov'; 'bruce.terry@noaa.gov'; 'michael.eckert@noaa.gov'; 'robert.kelly@noaa.gov'
Subject: CMT Slides (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

CMT Slides are posted here as soon as the briefing is complete.

If you are not within the USACE Organization, rights may not be grantable.

https://kme.usace.army.mil/CoPs/Emergency-Management/NWD/NWO/CMT%20MayJune%202011/Forms/AllItems.aspx

****

Eileen L. Williamson

Public Affairs Specialist

U.S. Army Corps of Engineers

Office: 402-995-2417

Mobile: 402-779-1448

eileen.l.williamson@usace.army.mil

Internet: nwo.usace.army.mil <https://www.nwo.usace.army.mil/>

Facebook: facebook.com/OmahaUSACE <http://www.facebook.com/OmahaUSACE>

Twitter: twitter.com/OmahaUSACE <http://www.twitter.com/OmahaUSACE>

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Classification: UNCLASSIFIED
Caveats: NONE

[redacted] NWO

From: Williamson, Eileen L NWO
Sent: Wednesday, June 01, 2011 3:31 PM
To: [redacted] NWD02; Farhat, Jody S NWD02; MRJIC; Farmer, Monique L NWO; Oldham, Margaret NWO; [redacted] NWO; Bertino, John J Jr NWO
Cc: [redacted] NWD02; [redacted] NWD02; [redacted] NWO; [redacted] M NWO
Subject: RE: Facebook Q and As (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

Once these talking points have been "blessed" I will use them to pull from to post occasional status updates and responses on Facebook.

-----Original Message-----
From: [redacted] NWD02
Sent: Wednesday, June 01, 2011 3:29 PM
To: Farhat, Jody S NWD02; Williamson, Eileen L NWO; MRJIC; Farmer, Monique L NWO; Oldham, Margaret NWO; [redacted] NWO; Bertino, John J Jr NWO
Cc: [redacted] NWD02; [redacted] NWD02; [redacted] NWO; [redacted] M NWO
Subject: RE: Facebook Q and As (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

I have updated the Dam Safety FAQs, following review and comment by Steve Butler. These may be more than you need. I anticipate that PAO and EM will select which questions and responses to post. Please let me know if you have questions, or if I can help with edits.

[redacted]

-----Original Message-----
From: Farhat, Jody S NWD02
Sent: Wednesday, June 01, 2011 9:47 AM
To: Williamson, Eileen L NWO; MRJIC; Farmer, Monique L NWO; Oldham, Margaret NWO; [redacted] NWO
Cc: Ruch, Robert J COL NWO; [redacted] NWD02; [redacted] NWD02; [redacted] NWO; [redacted] NWD02
Subject: RE: Facebook Q and As (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

1. Although forecasts change, how long do we anticipate the flows at 150k cfs?
At least through mid-July, but it will depend on the location. We're currently working on a longer range forecast and hope to provide a better estimate later this week.

2. There is criticism of holding releases for the birds.
http://www.keloland.com/NewsDetail6162.cfm?Id=115979
We have not operated for the birds in 2011 and have no intention of doing so this year. We are in full flood operations.

3. Need a general statement about the releases that were made last year and through the winter. (Notes on ice jams might be helpful)
Releases last fall and over the winter were above normal to complete the evacuation of the 2010 flood waters. The full flood control capacity of the mainstem reservoir system was available at the start of the 2011 runoff season.

4. How about a background on the spillway at Garrison? Have a statement from someone that potential outflow from fully open spillway at Garrison is 827,000 cfs - Obviously NOT our plan. Can we talk about HOW that works?
The spillway is designed to pass a flood much greater than the current event. Our forecasts indicate a peak release of 150,000 cfs, which will be passed through a combination of powerplant, regulating tunnel, and spillway releases.

5. Need some notes and comments about dam safety, that the dams are safe.
Our dams are safe. See COL Ruch's remarks in last night's stakeholder conference call and Q&A's I will forward you from Laila Berre.

-----Original Message-----
From: Williamson, Eileen L NWO
Sent: Wednesday, June 01, 2011 7:44 AM
To: Farhat, Jody S NWD02; MRJIC; Farmer, Monique L NWO; Oldham, Margaret NWO; [redacted] NWO
Cc: Ruch, Robert J COL NWO
Subject: Facebook Q and As (UNCLASSIFIED)
Importance: High

Classification: UNCLASSIFIED
Caveats: NONE

All,

At yesterday's CMT, Col Ruch asked me to make sure we are answering questions on Facebook.

Some of the questions are above my level of knowledge/understanding.

Rather than try to answer each question directly, I summarized the questions and need a little help with answers.

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Eileen L. Williamson

Public Affairs Specialist

U.S. Army Corps of Engineers

Office: 402-995-2417

Mobile: 402-779-1448

eileen.l.williamson@usace.army.mil

Internet: nwo.usace.army.mil <https://www.nwo.usace.army.mil/>

Facebook: facebook.com/OmahaUSACE <http://www.facebook.com/OmahaUSACE>

Twitter: twitter.com/OmahaUSACE <http://www.twitter.com/OmahaUSACE>

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Classification: UNCLASSIFIED
Caveats: NONE

Classification: UNCLASSIFIED
Caveats: NONE

Classification: UNCLASSIFIED
Caveats: NONE

Classification: UNCLASSIFIED
Caveats: NONE

[redacted] NWO

From: [redacted] NWD02
Sent: Wednesday, June 01, 2011 3:29 PM
To: Farhat, Jody S NWD02; Williamson, Eileen L NWO; MRJIC; Farmer, Monique L NWO; Oldham, Margaret NWO; [redacted] NWO; Bertino, John J Jr NWO
Cc: [redacted] NWD02; [redacted] NWD02; [redacted] NWO; [redacted] NWO
Subject: RE: Facebook Q and As (UNCLASSIFIED)
Attachments: NWO Dam Safety Program FAQs 01 June 11.docx

Classification: UNCLASSIFIED
Caveats: NONE

I have updated the Dam Safety FAQs, following review and comment by Steve Butler. These may be more than you need. I anticipate that PAO and EM will select which questions and responses to post. Please let me know if you have questions, or if I can help with edits.

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To: Williamson, Eileen L NWO; MRJIC; Farmer, Monique L NWO; Oldham, Margaret NWO; [redacted] NWO
Cc: Ruch, Robert J COL NWO; [redacted] NWD02; [redacted] NWD02; [redacted] F. Jr NWO; [redacted] NWD02
Subject: RE: Facebook Q and As (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

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-----Original Message-----
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Sent: Wednesday, June 01, 2011 7:44 AM
To: Farhat, Jody S NWD02; MRJIC; Farmer, Monique L NWO; Oldham, Margaret NWO; [redacted] NWO
Cc: Ruch, Robert J COL NWO
Subject: Facebook Q and As (UNCLASSIFIED)
Importance: High

Classification: UNCLASSIFIED
Caveats: NONE

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Eileen L. Williamson

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Classification: UNCLASSIFIED
Caveats: NONE

Classification: UNCLASSIFIED
Caveats: NONE

Classification: UNCLASSIFIED
Caveats: NONE

Dam Safety Program FAQs

Revised Draft by Laila Berre and Steve Butler as of 01 June 2011

Dam Safety Communication

Sample Frequently Asked Questions and Answers:

Q. Am I safe?

A. The Corps' message to the public continues to be one of preparation for the possibility of flooding. Aggressive monitoring and inspections are being conducted at the upper Missouri River dams by dam safety experts. Emergency Action Plans (EAPs) have been developed in coordination with local emergency management officials. Currently, there is no evidence to suggest an emergency dam failure situation exists, or is about to occur. USACE is responsible to take actions for suspected high risk conditions.

Q. What does failure mean?

A. In the context of dam safety, failure is defined as the uncontrolled release of a reservoir through collapse of the dam or some part of it. EAPS have been prepared for each dam to minimize loss of life in the event of a dam failure.

Q. Is this (are these) dam(s) at risk of failing?

A. We have seen no evidence unsatisfactory performance of the mainstem Missouri River dams. While we cannot completely eliminate risk, we can reduce risk. The objective of our Dam Safety Program is to maintain public safety and to make sure our dams are safe and risks are minimized. Some distress has been noted at the Williston levees along the Garrison Reservoir and repairs are underway.

Q. May we have copies of your inspection reports?

A. Requests for inspection reports will be evaluated on a case-by-case basis because of information that may expose a vulnerability that could be an operational security concern. In many cases, the Corps has posted information on District websites that can be accessed by the public.

Q. Why is my dam now at risk, when it has been here for many years?

A. We are currently experiencing record reservoir elevations and discharge volumes. We are cautious as we do not have historical experience on how our dams will perform under these conditions. Data monitoring and inspections are being performed to confirm that the dams are behaving as anticipated by the original designers.

Q: How do I know I'm safe?

A: The mainstem Missouri River dams pose no immediate danger to people and property below the dam. However, the full use of flood pool capacity does increase the risk of river flows above levee protection levels. The Corps urges citizens to contact their local emergency managers and work with them to determine the best path for being prepared for any contingency. Public safety is our number one priority. The safety of our employees, visitors, and everyone in or around the Missouri River dams is of paramount importance to us.

Q: What are the chances the dam could break?

A: There is no immediate danger of dam failure to people and property below the dam. The dam structures are not experiencing any symptoms that would indicate potential failure. However, the Corps urges citizens to contact their local emergency managers and work with them to determine the best path for being prepared for any contingency. Public safety is our number one priority.

Q: If there is a huge flood, how much time will I have to evacuate?

A: The Corps is in frequent communication with county and city officials and emergency managers who are responsible for evacuation planning. Our goal is to provide as much advance warning as possible. Communities that will be impacted by the high releases have been notified and evacuations are under way.

Q. If the dam fails, how do I find out if my home and business will be impacted?

A. The Corps has developed flood inundation maps as part of the emergency action plan (EAP) for each dam. Copies of our most recent inundation maps are posted on the Omaha District web site: http://www.nwo.usace.army.mil/html/op-e/flood.html

Property owners are encouraged to check the web site to see how their homes and businesses could be impacted. Please read the notes furnished on the maps. These maps have also been furnished to local officials.

Q. How do I prepare to make sure my family is safe?

A. Safety is a shared responsibility. The Corps has the responsibility to coordinate with local officials and communicate with the public on the condition of Corps owned dams. Private individuals are encouraged to become educated and aware of local conditions. Personal planning is encouraged, such as purchasing weather alert radios, keeping emergency supplies on hand, and determining personal evacuation routes.

Q. Is there an external website for the other agencies and the general public to access information on the Corps Dam Safety Program?

A – Unfortunately not at this time. A website is under development by our HQ office in Washington DC, tentative launch is scheduled for March 2012. However, each Corps of Engineers District office maintains individual web sites that provide flood updates. For Missouri River information from Montana to Rulo, Nebraska, please see the Omaha District web site. For river information from Rulo, Nebraska to St. Louis, please see the Kansas City District web site.

Q: Why hold / release so much water behind the dam?

A: (Need help from Water Management with this one.)

Q. Will the Corps fix the dams, if needed?

A. Yes. However, at this time we do not know if significant repairs to the dams will be required. We anticipate that minor repairs will be needed following this year's flood event. The Corps will coordinate with our HQ to ensure that the most critical repairs are performed first.

Should large scale repairs be needed, we will conduct comprehensive technical evaluations. Risk assessments would be performed to understand the extent of a problem and to evaluate options to fix the dams. In some cases a dam may have multiple deficiencies that require correction which increases the time required to start the fixes.

Q: Should we take down our sandbags and stop other preparations for floods?

A: No. At this time, the Corps encourages everyone to continue to be prepared for potential flooding. The dams are functioning as intended. However, extreme precipitation events require the release of large volumes of water to prevent overtopping or damaging the dam. .

Q: Do you have money to do what you need to do?

A: Yes.

Q. What are you doing?

A. The Corps is performing continual (24-7) monitoring and inspections. Dam Safety experts have been assigned to Fort Peck, Garrison, the Williston Levees, and Oahe to collect data and identify any potential concerns. All data collected data is reviewed by dam safety engineers and if needed, response actions are taken to improve performance.

[redacted] NWO

From: Bertino, John J Jr NWO
Sent: Wednesday, June 01, 2011 3:07 PM
To: Ruch, Robert J COL NWO; Schenk, Kathryn M NWO; Farhat, Jody S NWD02; [redacted] NWO; [redacted] NWO; MRJIC; Oldham, Margaret NWO; Farmer, Monique L NWO
Subject: Oahe Spillway.docx (UNCLASSIFIED)
Attachments: Oahe Spillway.docx

Classification: UNCLASSIFIED
Caveats: NONE

All,

Based on our stakeholder meeting last night, we thought we could eventually get the question about why we are managing the system to not use the spillway at Oahe. Here is the answer.

Bertino

Classification: UNCLASSIFIED
Caveats: NONE

Oahe Spillway

Question: Why are we managing the Missouri River Mainstem Dam System to minimize the potential to use the Spillway Gates at Oahe.

Answer: The concern is that Oahe Dam is the only Missouri River Mainstem Dam that has an earth-cut/rock-cut spillway. The spillway at Oahe has never been used and therefore we have no experience of what will occur. Past studies have indicated isolated erosion, but identified no head cut that would progress upstream and fail the spillway weir. Therefore we would much rather use the concrete spillway at the other 5 projects, prior to using the spillway at Oahe. There are no dam safety issues with using the spillway, we are just trying to minimize damage to the project.

[redacted] NWO

From: [redacted] NWO
Sent: Wednesday, June 01, 2011 2:31 PM
To: CENWO-EOC NWO; Williamson, Eileen L NWO; Farhat, Jody S NWD02; [redacted] HQ02; [redacted] HQ02; [redacted] HQ02; [redacted] HQ02
Cc: [redacted] NWO; [redacted] NWD02; Farhat, Jody S NWD02; [redacted] NWD02; [redacted] NWD02; [redacted] NWD-OMAHA; [redacted] NWD02; [redacted] NWD02; [redacted] NWD02; [redacted] NWD02; [redacted] NWD02; [redacted] NWO; [redacted] RMC; [redacted] NWD02
Subject: Missouri River Basin Water Management Division Situation Report of 6-1-11 (UNCLASSIFIED)
Attachments: Missouri River Basin Water Management Situation Report 6-1-11.docx

Classification: UNCLASSIFIED
Caveats: NONE

Kim,

Today's NWD Water Management situation report is attached.

[redacted]
Missouri Basin Water Managment Division
Northwestern Division
Corps of Engineers
[redacted]
[redacted]@usace.army.mil

Classification: UNCLASSIFIED
Caveats: NONE

Missouri River Basin Water Management Situation Report – 6-1-11

Reservoir Conditions

The upper three reservoirs of the Missouri River Mainstem Reservoir System provide the bulk of the storage of water. All three are in their exclusive flood control zones, nearing their spillway crests. Table 1 summarizes the situation as of 0000 hours this morning. More details on the reservoirs can be found on the daily bulletin prepared by the Missouri River Basin Water Management Division at: http://www.nwd-mr.usace.army.mil/rcc/reports/showrep.cgi?4BULL0MR1.

Table 1. Key Reservoir Data (through 0000 hrs 6/1/11)

Reservoir	Inflow kcfs	Release kcfs	Top of Spillway Gates feet msl	Current Level feet msl	24-hr Change feet
Fort Peck	78.0	9.7	2250	2248.9	0.5
Garrison	137.0	85.5	1854	1853.3	0.2
Oahe	103.0	86.3	1620	1618.8	0.2
Big Bend	83.0	83.9	1423	1419.0	-0.2
Fort Randall	94.0	76.6	1375	1359.9	0.4
Gavins Point	76.0	77.0	1210	1206.4	-0.2

Based on the current level data on the upper three reservoirs, the amount of remaining storage is diminishing. One way to characterize this factor is to compute the percent of the exclusive flood control zone that is remaining to store water before water passes uncontrolled over the spillway gates. The lower three reservoirs have much less capability to store the inflows that are coming into the Missouri River Mainstem Reservoir System, with Fort Randall Reservoir having the greater amount. As of today, the stored water has not yet entered the exclusive flood control zones of the three smaller reservoirs; therefore, 100 percent of their exclusive flood control storage remains available. Table 2 summarizes the storage volumes of all six System reservoirs, with the last column listing the amount of exclusive flood control storage that remains as of today. Spillways will be, or are being used, at four of the reservoirs. The three reservoirs currently spilling water are Gavins Point, Fort Randall, and Garrison (0800 today for first time ever), and the one that will be spilling water and will eventually have water surcharged over its top of exclusive flood control zone is Fort Peck.

Table 2. Reservoir Storage Data (through 0000 hrs 6/1/11)

Reservoir	Current kAF	Total kAF	Remaining kAF	Exclusive kAF	% Excl Left
Fort Peck	18,193	18,463	270	971	28
Garrison	23,574	23,821	247	1,489	17
Oahe	22,725	23,137	412	1,102	37
Big Bend	1,574	1,798	224	60	100
Fort Randall	3,959	5,418	1,459	985	100
Gavins Point	354	450	96	57	100

Releases from the five of the six reservoirs are currently exceeding records prior to 2011. The sixth, Fort Peck Reservoir, will exceed its record release within the next 2 weeks. Table 3 provides release data for all six reservoirs to provide some perspective on the changes that will be happening over the next 2 weeks. A full listing of the data through mid-July is available at: http://www.nwd-mr.usace.army.mil/rcc/reports/twout.html.

Table 3. Reservoir Release Comparisons (through 0000 hours 6/1/11)

Reservoir	Yesterday	Forecast Today	7 days out 8 June	14 days out 15 June	Pre-2011 Record
	kcfs	kcfs	kcfs	kcfs	kcfs
Fort Peck	9.7	10.0	30	45	35
Garrison	85.5	100.0	130	140	65
Oahe	86.3	85.0	150	150	59
Big Bend	83.9	85.0	150	150	74
Fort Randall	76.6	81.0	138	148	67
Gavins Point	77.0	81.0	140	150	70

River Conditions

The cities of Bismarck, ND and Pierre, SD are preparing for flood stages on the Missouri River resulting primarily from the releases from Garrison and Oahe Dams, respectively. Many communities along the lower Missouri River are currently experiencing Missouri River flows that are above flood stage by several feet. The flood stages currently being experienced will be exceeded as Missouri River Mainstem Reservoir System releases increase over the next few weeks to pass the anticipated inflows from mountain snowpack runoff and heavy rains in the Missouri River basin. Table 4 summarizes the current conditions as of 0600 hours this morning and the Corps' current forecast for crest stages.

Table 4. Missouri River Stage Data for 6/1/11 at 0600 CDT

Location	Flood Stage	Current Stage	Forecast Crest Stage	Date of Crest Stage
Bismarck, ND	16	15.8	20-21	mid-Jun
Pierre, SD	13	15.2	18.7	mid-Jun
Sioux City, IA	30	28.0	35-37	mid-Jun thru July
Decatur, NE	35	33.1	40-42	mid-Jun thru July
Omaha, NE	29	29.2	34-36	mid-Jun thru July
Nebraska City, NE	18	22.9	27-28+	mid-Jun thru July
St. Joseph, MO	17	21.8	27-32	mid-Jun thru July
Kansas City, MO	32	24.4	30-39	mid-Jun thru July
Waverly, MO	20	22.9	27-31	mid-Jun thru July
Boonville, MO	21	21.9	27-33	mid-Jun thru July
Hermann, MO	21	22.6	27-33	mid-Jun thru July

Information on Current Mountain Snowpack and Forecasted Rainfall

Releases from the System reservoirs are based on snowpack and rainfall forecasts in the Missouri River basin. An updated snowfall forecast was not prepared today; however, the Hydrologic Prediction Center (HPC) of NOAA prepares a rainfall forecast daily for up to the next 5 days, with an accumulated figure also presented on its website. Figure 1 is the accumulated 5-day rainfall forecast released today by HPC, and Figure 2 is today's mountain snowpack update compiled by the Corps.

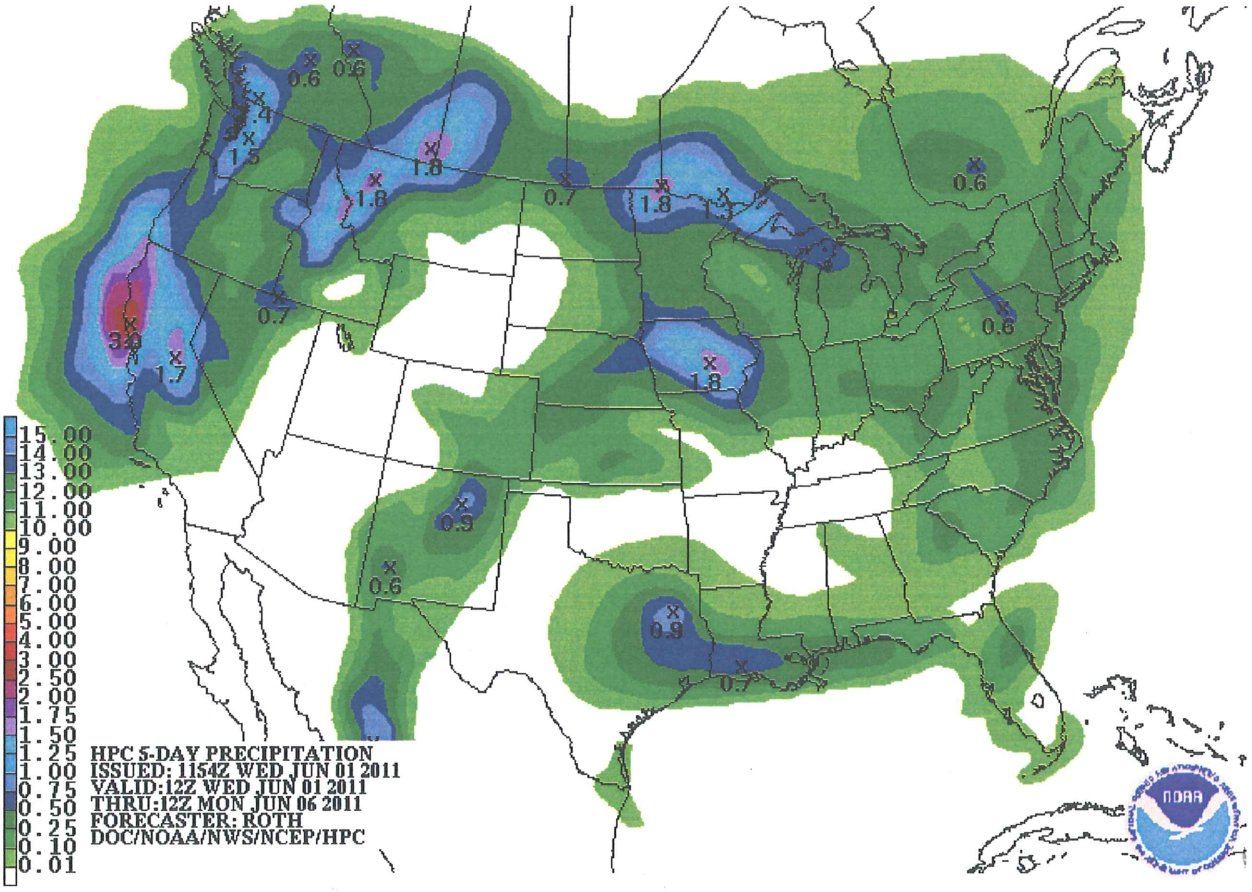

Figure 1. 5-day total QPF ending 0700 Monday, June 6, 2011.

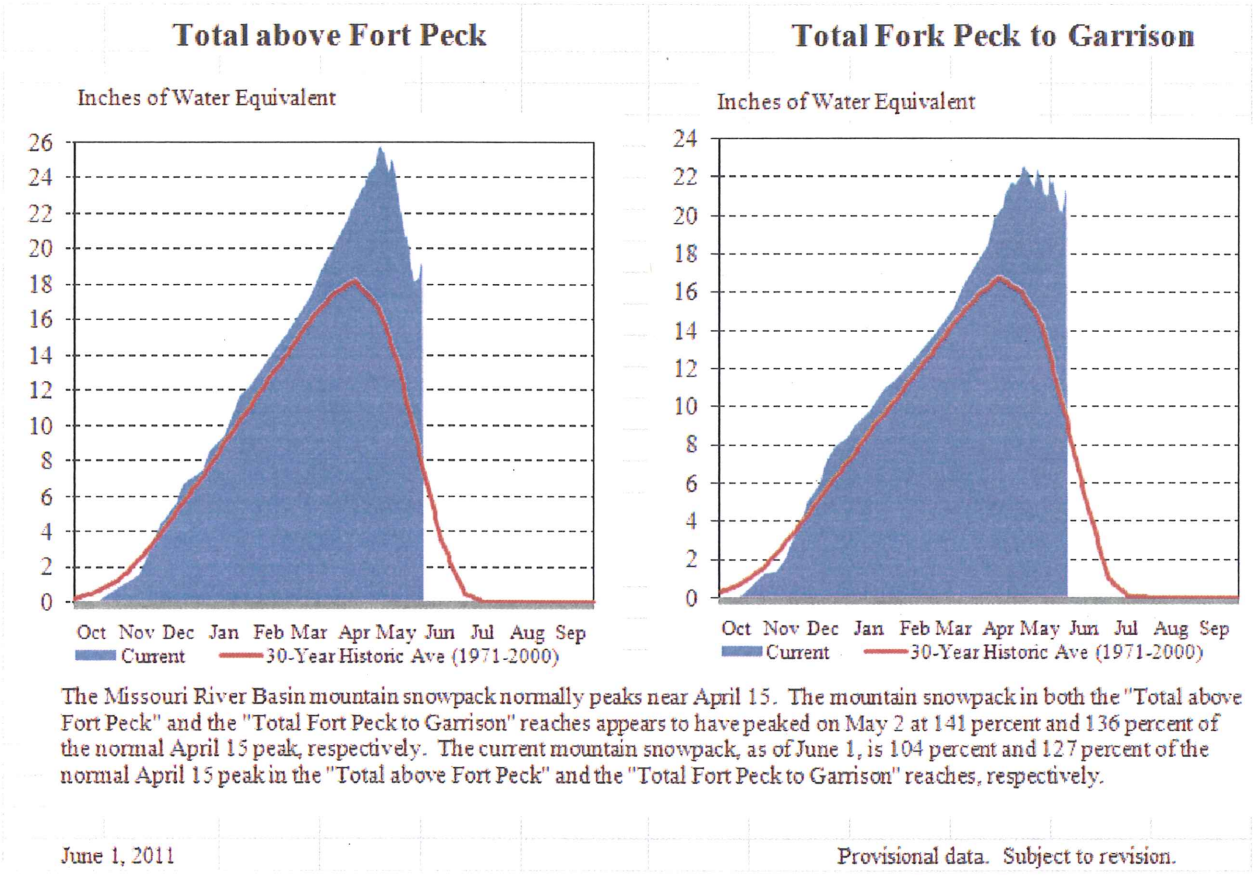

Figure 2. Missouri River basin mountain snowpack water content summary, 2010-2011 – June 1, 2011.

Actual Precipitation for May and Year to Date

Four figures are attached below that provide some perspective on the effect actual precipitation has created in the basin above primarily Garrison Reservoir in 2011. Much of eastern Montana and some adjacent areas normally receive greater than 2.5 inches but less than 10 inches of precipitation through May. Much greater precipitation has actually occurred over that region, with a major portion of the excess occurring in May 2011. Figure 3 presents how much occurred in May, with the range being greater than 6 inches but less than 16 inches, somewhat higher than the normal annual precipitation. Figure 4 shows the amount greater than normal for May at greater than 3 to over 8 inches above normal over the region. To provide the picture of year-to-day precipitation, Figure 5 is a graphic of this precipitation showing much of the region under discussion at greater than 10 but less than 20 with some greater amounts over a relatively small area. Finally, Figure 6 shows the amount over normal at >6 inches to less than 16 inches over normal. In summary, eastern Montana and the surrounding region have received approximately 6 to 16 inches of precipitation over normal for the year so far, with about half of that excess occurring in just the month of May.

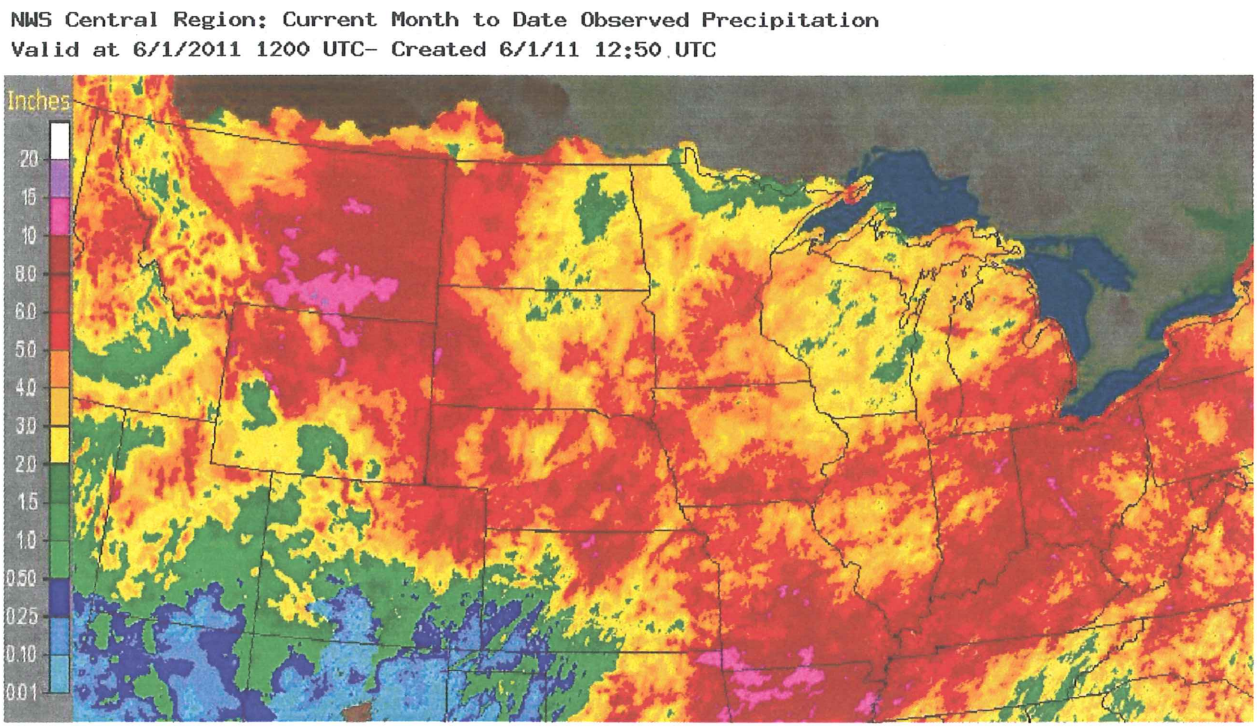

Figure 3. Observed precipitation in the NWS Central Region in May 2011.

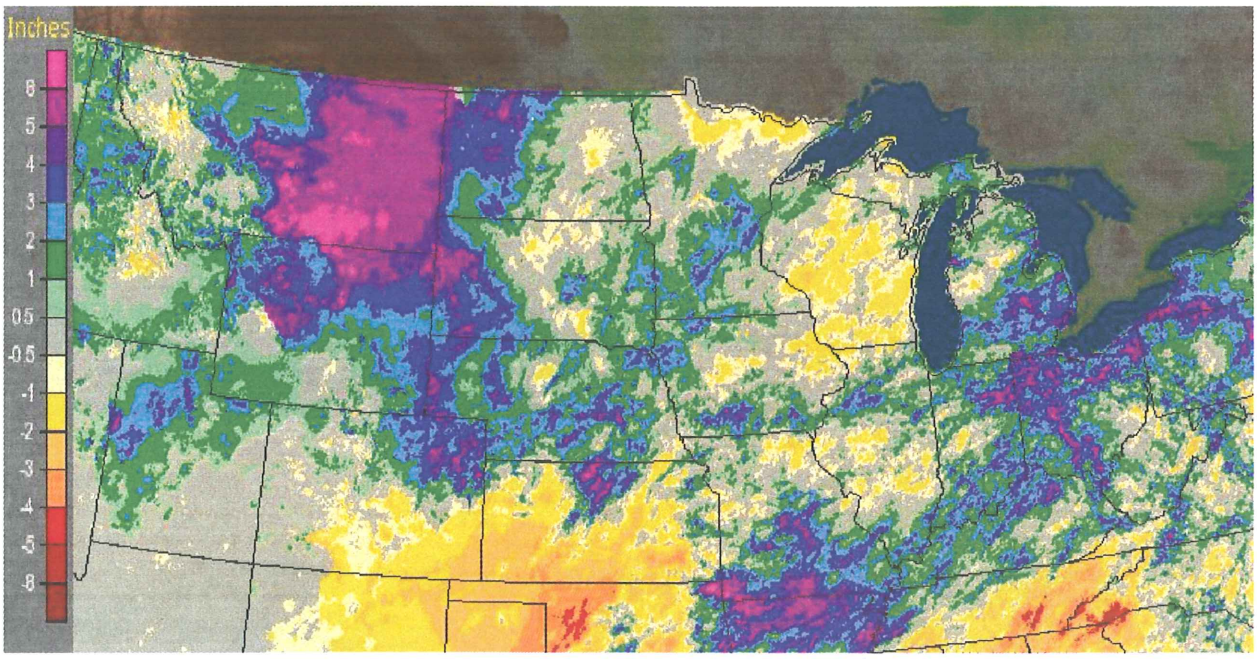

Figure 4. Amount that observed precipitation in May 2011 exceeds the normal amount in the NWS Central Region.

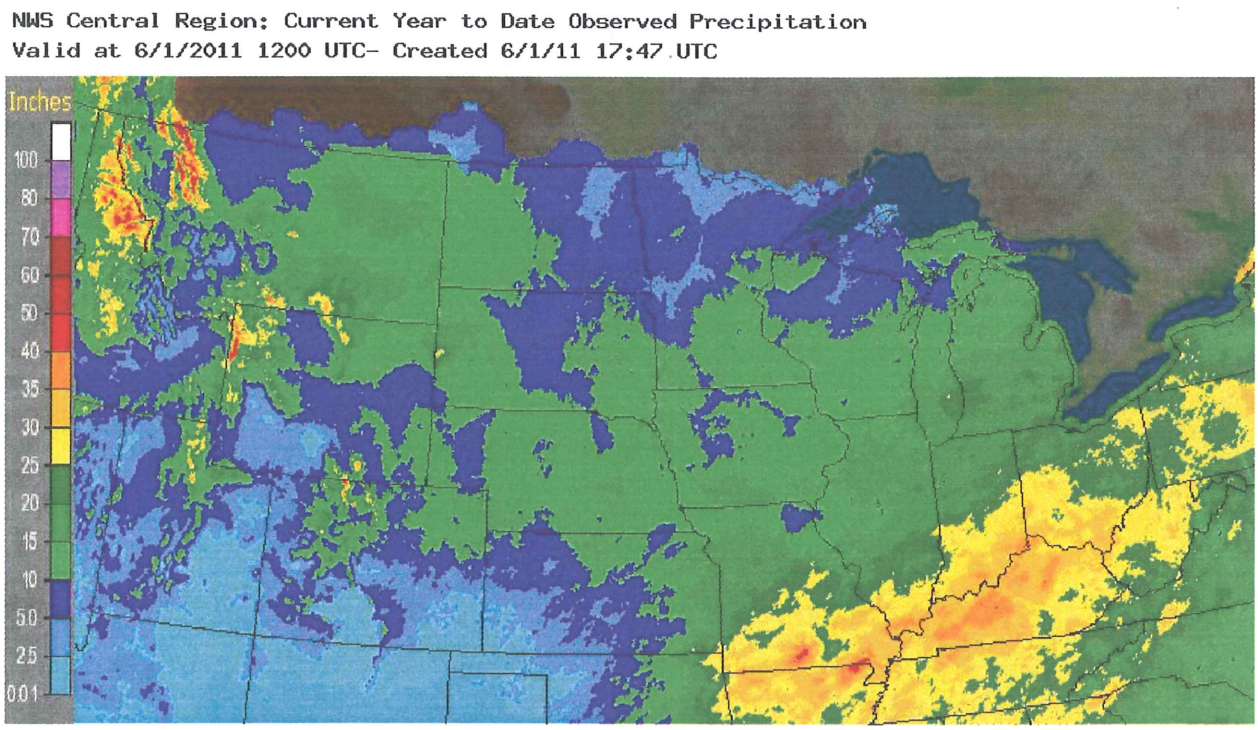

Figure 5. Observed precipitation in the NWS Central Region in 2011 through May.

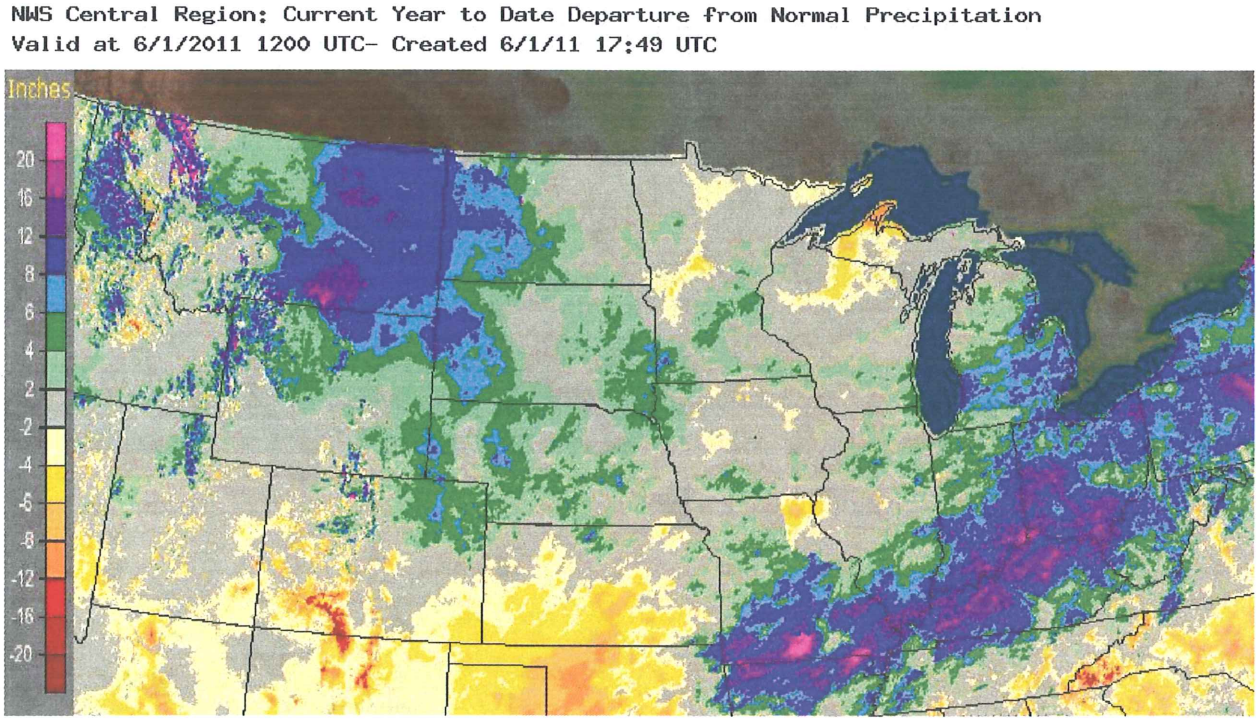

Figure 6. Amount that observed precipitation in 2011 through May exceeds the normal amount during the same period in the NWS Central Region.

Actions Underway to Prepare for the Releases

Actions continue to prepare for the already high flows on the Missouri River and those that will result from the increased releases from the Missouri River Mainstem System reservoirs. The Omaha District continues to work with the cities of Bismarck/Mandan, ND and Pierre/Ft. Pierre, SD to construct levees to limit flood impacts to those cities. Floodplain evacuations have been ongoing for many lower-lying areas along the lower Missouri River. Floodplain inundation maps have been posted by the Omaha District to identify the areas of potential flooding for the emergency managers and the public. Overtopping of levees information is also available from both districts. The Kansas City District is ramping up releases from their reservoirs to allow the evacuation of the flood control zones before the forecasted 150-kcfs releases begin from Gavins Point Dam.

The Lake Audubon pool continues to rise due to inflows from Garrison Reservoir. The current rate of rise will gradually decrease as the Lake Audubon level approaches the Garrison Reservoir level. The Missouri River Water Management Division has decided to utilize storage in Lake Audubon up to at least elevation 1854.0.

[redacted] NWO

From: Tipton, Robert A Col NWD
Sent: Wednesday, June 01, 2011 1:17 PM
To: Farhat, Jody S NWD02
Subject: RE: WM Update for the CG (UNCLASSIFIED)

Thanks Jody - looks great. Two quick questions. The red numbers indicate what? Also, I take it that we have no projected peak stage for Yankton?

Otherwise - I think this is exactly what the boss needs. I will QC them and then send them back to you once I get the CG's buy in. If we can then update these daily --- if no changes just update the as of date, which I will add.

I'll try not to bother you for the rest of the day....

Thanks,

RT

Robert A. Tipton, P.E.
COL, EN
Deputy Commander
Northwestern Division
U.S. Army Corps of Engineers

503-808-3701

-----Original Message-----
From: Farhat, Jody S NWD02
Sent: Wednesday, June 01, 2011 11:05 AM
To: Tipton, Robert A Col NWD
Subject: RE: WM Update for the CG (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

First 2 slides updated on attached.

-----Original Message-----
From: Tipton, Robert A Col NWD
Sent: Wednesday, June 01, 2011 11:39 AM
To: Farhat, Jody S NWD02
Subject: WM Update for the CG

Jody,

Attached is how the CG would like to get the updates. The second two slides will not change after we get the travel times in and the first two would only change for the Current Stage as of that day and the Projected date of hitting the highest stages based on change conditions...as well as the ranges of course if that changes as well. All the rest of it is the same.

Don't worry about cleaning it up - just send it back to me with the first cut of the data (even if you just give me the travel times in a chart...we will add that on to the map

slides) and we will clean it up on this end. I think once we get this set, it shouldn't be too hard to keep updated for the boss.

RT

Robert A. Tipton, P.E.
COL, EN
Deputy Commander
Northwestern Division
U.S. Army Corps of Engineers

503-808-3701

Classification: UNCLASSIFIED
Caveats: NONE

[redacted] NWO

From: [redacted] NWO
Sent: Wednesday, June 01, 2011 1:08 PM
To: Bertino, John J Jr NWO; Schenk, Kathryn M NWO; [redacted] NWO; [redacted] NWO
Cc: Farhat, Jody S NWD02; [redacted] NWO; [redacted] NWO
Subject: RE: Oahe Spillway.docx (UNCLASSIFIED)
Attachments: Oahe Spillway.docx

Recommend you add the following: Additionally, spillway flows will cause erosion in the spillway exit channel and in the Missouri River floodplain. Some of this eroded material will deposit in the Missouri River channel in the Pierre-Ft.Pierre area and reduce channel capacity along areas where emergency levees have just been constructed.

-----Original Message-----
From: Bertino, John J Jr NWO
Sent: Wednesday, June 01, 2011 11:10 AM
To: Schenk, Kathryn M NWO; [redacted] NWO; [redacted] NWO; [redacted] NWO
Cc: Farhat, Jody S NWD02
Subject: Oahe Spillway.docx (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

All,

Attached is an answer to a potential question we could get on the Oahe Spillway. Please take a look at the answer and give me any feed back.

Bertino

Classification: UNCLASSIFIED
Caveats: NONE

Oahe Spillway

Question: Why are we managing the Missouri River Mainstem Dam System to minimize the potential to use the Spillway Gates at Oahe.

Answer: The concern is that Oahe Dam is the only Missouri River Mainstem Dam that has an earth-cut/rock-cut spillway. The spillway at Oahe has never been used and therefore we have no experience of what will occur. Past studies have indicated isolated erosion, but identified no head cut that would progress upstream and fail the spillway weir. Therefore we would much rather use the concrete spillway at the other 5 projects.

[redacted] NWO

From: [redacted] NWD02
Sent: Wednesday, June 01, 2011 1:01 PM
To: Bertino, John J Jr NWO; [redacted] NWD; Schenk, Kathryn M NWO; Farhat, Jody S NWD02
Cc: [redacted] NWO; [redacted] NWO
Subject: RE: Brief on dam safety issues (UNCLASSIFIED)
Attachments: Missouri Mainstem Dam Info May 11.xlsx

Classification: UNCLASSIFIED
Caveats: NONE

[redacted] I have revised per your request. Please advise if this information is to be provided to the JIC.

[redacted]

-----Original Message-----
From: [redacted] NWD02
Sent: Wednesday, June 01, 2011 11:39 AM
To: Bertino, John J Jr NWO; [redacted] NWD; Schenk, Kathryn M NWO; Farhat, Jody S NWD02
Cc: [redacted] NWO; [redacted] NWO
Subject: RE: Brief on dam safety issues (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

For your review. I expanded on the info compiled by Omaha District, to include DSAC ratings (as requested by Gen. McMahon), plus info on the sub-impoundments that are managed as dams.

Hopefully this is OK.

[redacted]

-----Original Message-----
From: Bertino, John J Jr NWO
Sent: Wednesday, June 01, 2011 10:11 AM
To: [redacted] NWD02
Subject: FW: Brief on dam safety issues (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

[redacted],

Col. Ruch tasked me with putting this together for Gen McMahon. Attached is what Bob Worden has put together.

Bertino

-----Original Message-----
From: [redacted] NWO
Sent: Wednesday, June 01, 2011 9:48 AM

To: Bertino, John J Jr NWO
Cc: Butler, Steve M NWO
Subject: Brief on dam safety issues

[redacted]
U.S. Army Corps of Engineers, Omaha District
1616 Capitol Avenue
Omaha, NE 68102-9000
Phone: (402) 995-2250

Classification: UNCLASSIFIED
Caveats: NONE

Classification: UNCLASSIFIED
Caveats: NONE

Classification: UNCLASSIFIED
Caveats: NONE

NWD Dam Safety Action Classification (DSAC) I, II, and III Project Summaries
For Missouri River Mainstem Dams

I	**URGENT and COMPELLING (Unsafe)**
II	**URGENT (Unsafe or Potentially Unsafe)**
III	**HIGH PRIORITY (Conditionally Unsafe)**
IV	**PRIORITY (Marginally Safe)**

Name	DSAC	Location	Remarks
Fort Peck Dam (Past record pool was elev. 2251.6 in 1975. New forecast record is 2252.4 in early July. Top of gates is 2250.)	IV	Montana	1. Spillway - Concern is that at a flow of approximately 25,000 cfs there may be uplift on the lower slabs that causes them to heave up causing displacement. This may create a head cut and process up the chute. 2. Flood Tunnels - Concern is with the ring gates. In 1975 the ring gates were used and the vibration on the gates was so great that they could only leave them open for short periods of time before they would have to close them and tighten or replace bolts that had vibrated loose. 3. First Filling - This event will cause the pool to rise approximately 0.5 feet above the previous record pool. Any time the pool rises above the previous record it is reaching portions of the dam that have not been tested and there is always a concern when a portion of the Dam and abutments experiences water for the first time.
Garrison Dam (Past record pool was elev. 1854.8 in 1975. New forecast record is 1854.6 in early June. Top of gates is 1854.)	IV	North Dakota	1. Spillway - Concern is that the spillway at Garrison has never been used. We have no experience of what will occur. It may or may not be a concern. 24 hour surveillance will be conducted on spillway during releases 2. First Filling - This event may cause the pool to rise above the previous record pool. Any time the pool rises above the previous record it is reaching portions of the dam that have not been tested and there is always a concern when a portion of the Dam and abutments experiences water for the first time. 3. Cavitation of flood tunnels – Cavitation was a foot thick with 20,000cfs in 1997. If cavitation starts it may continue through the concrete. Inspection will be conducted if flows are diverted through the spillway.
Williston Levees (Garrison Sub Impoundment)	III	North Dakota	Insufficient freeboard. Erosion of the embankment from wave action. Damaged relief wells and collector system contributing to foundation and embankment seepage and piping.
Snake Creek Embankment (Garrison Sub Impoundment)	IV	North Dakota	No current dam safety concerns. History of seepage coming through the pervious outwash sand and gravel foundation. Failure of the downstream blanket could cause in seepage and piping and loss of the Lake Audubon pool.

Oahe (Past record pool was elev. 1618.7 in 1995 and 1996. New forecast record is 1619.6 in early June. Top of gates is 1620.)	III	South Dakota	1. Station 61+00 – Historic area of concern with regard to slope stability. Movements have been monitored for many years. Movements are small and decreasing. Visual monitoring is being conducted and movement devices are being read and evaluated for any signs of concern. 2. Spillway - Concern is that the earth-cut/rock-cut spillway at Oahe has never been used. We have no experience of what will occur. Past studies have indicated isolated erosion, but identified no head cut that would progress upstream and fail the spillway weir. 24 hour surveillance will be conducted on spillway during releases. 3. First Filling - This event has caused the pool to rise approximately 0.7 feet above the previous record pool. Any time the pool rises above the previous record it is reaching portions of the dam that have not been tested and there is always a concern when a portion of the Dam and abutments experiences water for the first time
Lake Pocasse (Oahe Sub Impoundment)	III	South Dakota	No current dam safety concerns. Potential for piping at the conduit and collapse of the conduit, as well as embankment and Foundation seepage and piping.
Fort Yates (Oahe Sub Impoundment)	III	South Dakota	No current dam safety concerns. Potential for piping at the conduit and collapse of the conduit, as well as embankment and Foundation seepage and piping.
Big Bend The record pool of 1422.1 will not be exceeded.	III	South Dakota	1. No current dam safety concerns 2. Concern is that the spillway at Big Bend has never been used. We have no experience of what will occur. It may or may not be a concern. 24 hour surveillance will be conducted on the spillway during releases. 3. Not currently a dam safety issue. However, under seepage has been identified as an area of concern at higher pools than currently projected.
Fort Randall The record pool of 1372.2 will not be exceeded.	III	South Dakota	1. Under seepage - Not currently a dam safety issue. However, under seepage has been identified as an area of concern. Recent camera inspection of the drain system behind the powerhouse indicated it was generally in poor conditions. Flows are being monitored for quantity and clarity. 2. Right Spillway Wall – Erosion of right spillway wall backfill occurred during spillway releases. The gates near the right wall are not being used until the erosion is repaired. This limits the amount of releases through the spillway
Gavins Point The record pool of 1210.7 will not be exceeded.	III	South Dakota	1. No current dam safety concerns. 2. Under seepage - Not currently a dam safety issue. However, under seepage has been identified as an area of concern at higher pools than currently projected.

[redacted] NWO

From: Tipton, Robert A Col NWD
Sent: Wednesday, June 01, 2011 12:59 PM
To: Farhat, Jody S NWD02
Subject: RE: Clarification (UNCLASSIFIED)
Attachments: Travel Times.pptx

Thanks,

Take a quick look at these for accuracy and clarity please. Appreciate all the hard work.

RT

Robert A. Tipton, P.E.
COL, EN
Deputy Commander
Northwestern Division
U.S. Army Corps of Engineers

503-808-3701

-----Original Message-----
From: Farhat, Jody S NWD02
Sent: Wednesday, June 01, 2011 10:25 AM
To: Tipton, Robert A Col NWD
Subject: RE: Clarification (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

yes

-----Original Message-----
From: Tipton, Robert A Col NWD
Sent: Wednesday, June 01, 2011 12:21 PM
To: Farhat, Jody S NWD02
Subject: Clarification

Jody,

Just to clarify - the travel time from Garrison to Bismarck is about 1 Day...which is the same to the headwaters of Oahe?

Robert A. Tipton, P.E.
COL, EN
Deputy Commander
Northwestern Division
U.S. Army Corps of Engineers

503-808-3701

Classification: UNCLASSIFIED

Caveats: NONE

Missouri River Travel Times

1 June 2011

US Army Corps of Engineers
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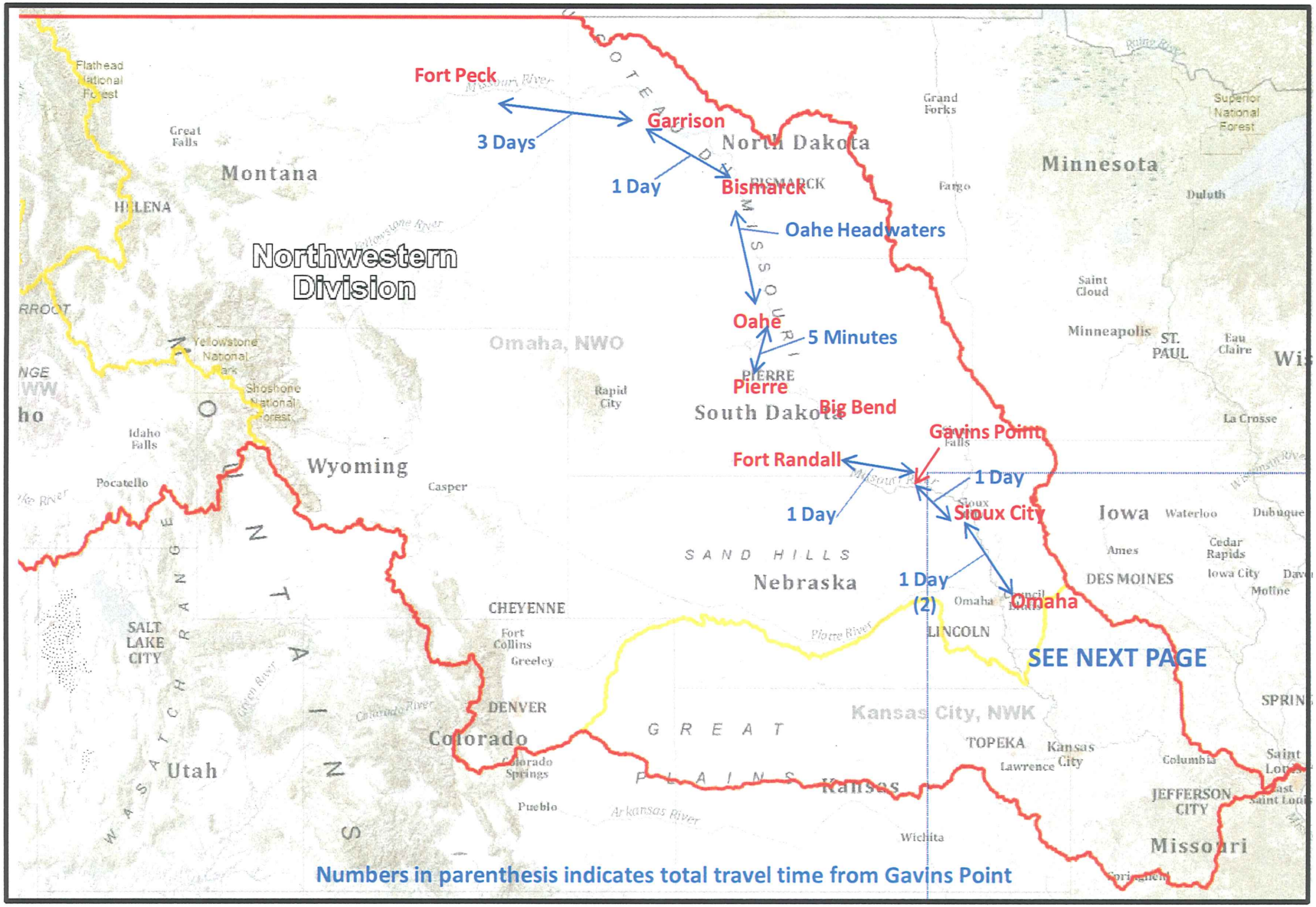

Missouri River Travel Times

1 June 2011

US Army Corps of Engineers
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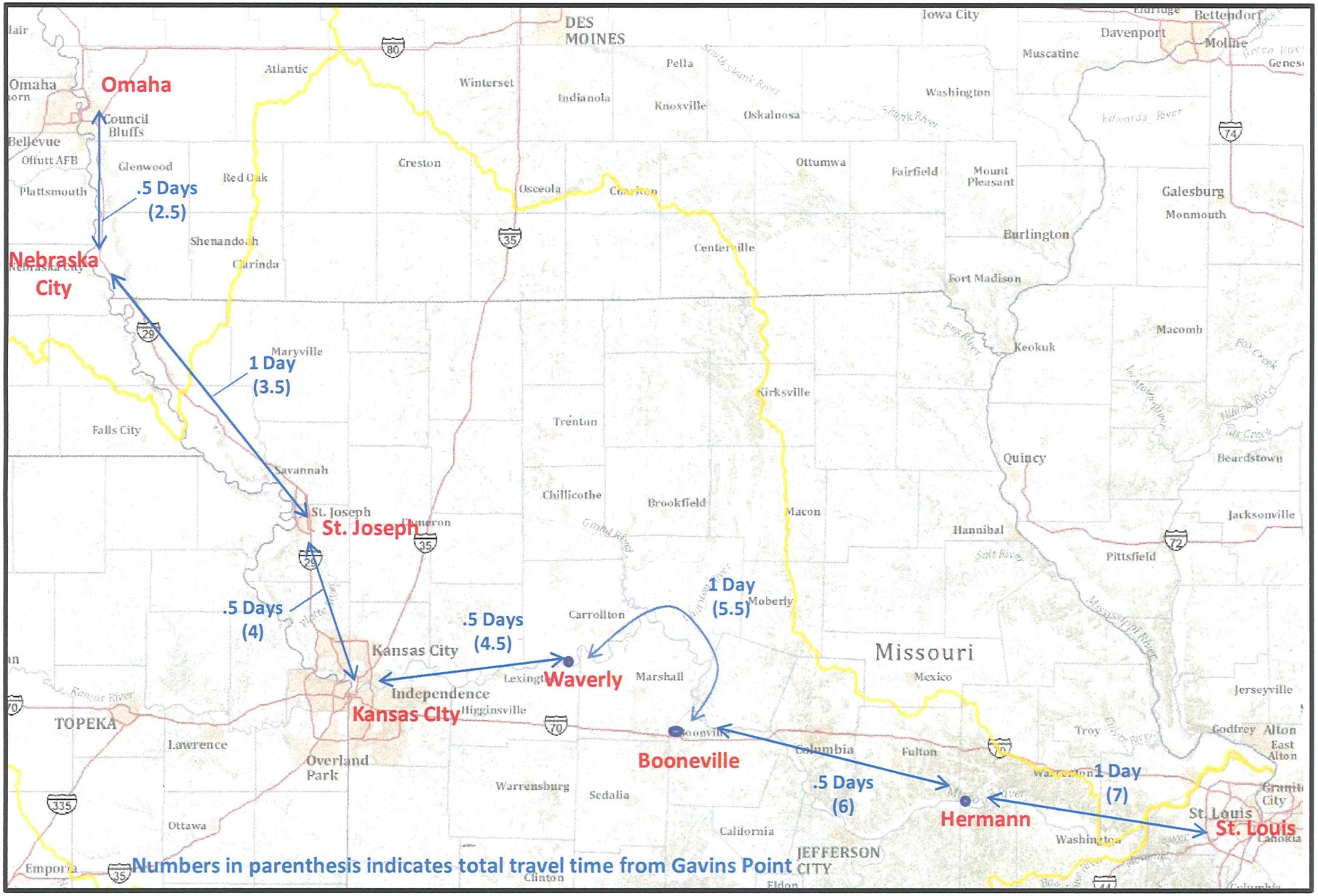

[redacted] NWO

From: [redacted] NWO
Sent: Wednesday, June 01, 2011 12:53 PM
To: Bertino, John J Jr NWO; Farhat, Jody S NWD02; [redacted] NWO; Schenk, Kathryn M NWO
Subject: RE: Oahe Spillway.docx (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

Either answer works for me. I assume this has to do with dam safety rumors. I would possibly emphasize that there are no dams safety issues with using the spillway, we are just trying to minimize damage to the project

-----Original Message-----
From: Bertino, John J Jr NWO
Sent: Wednesday, June 01, 2011 12:38 PM
To: Farhat, Jody S NWD02; [redacted] M NWO; Schenk, Kathryn M NWO; [redacted] NWO
Subject: FW: Oahe Spillway.docx (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

All,

Can you please take a look the re-write that Katie did for this answer. I think it is very good.

Bertino

-----Original Message-----
From: Schenk, Kathryn M NWO
Sent: Wednesday, June 01, 2011 12:32 PM
To: Bertino, John J Jr NWO
Cc: Schenk, Kathryn M NWO
Subject: Oahe Spillway.docx

Classification: UNCLASSIFIED
Caveats: NONE

Classification: UNCLASSIFIED
Caveats: NONE

[redacted] NWO

From: [redacted] NWD02
Sent: Wednesday, June 01, 2011 12:41 PM
To: Taxer, Gordon N NWD
Cc: Farhat, Jody S NWD02
Subject: FW: Historic Peaks below Gavins (UNCLASSIFIED)
Attachments: Below Gavins - Range of Flows and Stages - Final.pdf; Below Gavins - Levee Overtopping Stages - Final.pdf

Classification: UNCLASSIFIED
Caveats: NONE

Gordon,

Jody asked me to send these to you. These should be on the NWO website this afternoon.

[redacted].
Reservoir Regulation Team Lead
Missouri River Basin Water Management,
Northwestern Division, USACE
[redacted]
[redacted] (fax)

-----Original Message-----
From: [redacted] NWD02
Sent: Wednesday, June 01, 2011 11:57 AM
To: Farhat, Jody S NWD02
Subject: RE: Historic Peaks below Gavins (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

Attached.

[redacted].
Reservoir Regulation Team Lead
Missouri River Basin Water Management,
Northwestern Division, USACE
[redacted]
[redacted] (fax)

-----Original Message-----
From: Farhat, Jody S NWD02
Sent: Wednesday, June 01, 2011 11:49 AM
To: [redacted] NWD02
Subject: RE: Historic Peaks below Gavins (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

And I need the yellow stage forecast tables

-----Original Message-----
From: [redacted] NWD02
Sent: Wednesday, June 01, 2011 11:45 AM

To: Farhat, Jody S NWD02
Subject: Historic Peaks below Gavins (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

Some text from [redacted] - 1952 - Sioux City, Omaha, Nebraska City

In response to a question raised yesterday during the 1800 call here is a response:

The 1952 Flood along the Missouri River had a peak discharge of 441,000 cfs at Sioux City with a stage of 24.28 feet. The gage in 1952 was at a different datum so if the 1952 flood occurred today, it would have a stage of 44.26 feet at the Sioux City gage. This year, the forecasted flow at Sioux City with a Gavins Point Release of 150,000 cfs is 170,000 to 200,000 cfs depending on tributary inflows. This would result in a stage of 35 to 37 feet at Sioux City which would be 7 to 9 feet lower than the 1952 peak stage at Sioux City.

At Omaha, the 1952 flood had a peak discharge of 396,000 cfs with a stage of 30.20 feet. In 1952, the gage at Omaha had a datum that was 10 feet higher than today. Therefore, if the 1952 flood occurred today, it would result in a stage of 40.2 feet at the Omaha gage. At Omaha, with a release of 150,000 cfs from Gavins Point, the forecasted flow is 175,000 to 210,000 cfs with a stage of 34 to 35 feet. This is 5 to 6 feet lower than the 1952 peak stage.

At Nebraska City, the 1952 flood had a peak discharge of 414,000 cfs and a peak stage of 27.66 feet. The datum of the Nebraska City gage was 1.42 feet lower in 1952 than it is today, so if the 1952 flood occurred today it would result in a stage of 26.24 feet at Nebraska City. The forecasted flow at Nebraska City this year is 200,000 to 250,000 cfs which will result in stages of 27 to 28 feet at Nebraska City, slightly higher than the 1952 flood due to levee construction and other channel changes.

[redacted]E.
Reservoir Regulation Team Lead
Missouri River Basin Water Management,
Northwestern Division, USACE
[redacted]
[redacted] (fax)

Classification: UNCLASSIFIED
Caveats: NONE

Classification: UNCLASSIFIED
Caveats: NONE

Classification: UNCLASSIFIED
Caveats: NONE

Classification: UNCLASSIFIED
Caveats: NONE

Gavins Point Release of 150 kcfs

Stages are based on rating curves as of:			29-May-2011	
Missouri River @	**Flood Stage**	**Gage Datum ***	**w/ Incremental Flows ****	
		ft NGVD 29	Likely Range of Flows with normal precipitation	
Sioux City	30	1056.98	170 kcfs	200 kcfs
	Stage		35	37
Decatur	35	1010.00	175 kcfs	205 kcfs
	Stage		40	42
Blair	26.5	977.60	175 kcfs	205 kcfs
	Stage		30	32
Omaha	29	948.24	175 kcfs	210 kcfs
	Stage		34	36
Nebraska City	18	905.36	200 kcfs	250 kcfs
	Stage		27	above 28 ***
Brownville	33	860.00	205 kcfs	270 kcfs
	Stage		43	above 44 ***
Rulo	17	837.23	210 kcfs	290 kcfs
	Stage		25.5	above 27 ***
St. Joseph	17	788.19	215 kcfs	320 kcfs
	Stage		27	32
Atchison	22	762.20	215 kcfs	320 kcfs
	Stage		30	34
Leavenworth	20	742.20	215 kcfs	320 kcfs
	Stage		27	33
Kansas City	32	706.40	220 kcfs	350 kcfs
	Stage		30	39
Sibley	22	683.92	220 kcfs	350 kcfs
	Stage		28	33
Napoleon	17	680.24	220 kcfs	350 kcfs
	Stage	NAVD 88	25	29

Waverly	20	646.00	230 kcfs	370 kcfs
	Stage		27	31
Miami	18	621.35	235 kcfs	370 kcfs
	Stage		26	30
Glasgow	25	586.49	250 kcfs	410 kcfs
	Stage		32	37
Boonville	21	565.42	260 kcfs	420 kcfs
	Stage		27	33
Jefferson City	23	520.18	260 kcfs	430 kcfs
	Stage	NAVD 88	27	35
Chamois	17	502.50	290 kcfs	450 kcfs
	Stage		24	29
Gasconade	22	484.80	300 kcfs	470 kcfs
	Stage		30	35
Hermann	21	481.56	300 kcfs	470 kcfs
	Stage		27	33
Washington	20	457.97	300 kcfs	470 kcfs
	Stage	NAVD 88	23	32
St. Charles	25	413.47	300 kcfs	470 kcfs
	Stage		28	37

Notes:

* All gage datums are FT NGVD 29 unless otherwise indicated.

** Once we achieve a constant release of 150,000 cfs from Gavins Point, we expect the Missouri River to fluctuate between these likely forecasted flows. We do not expect to fall below the minimum flows once the full Gavins Point release begins. We have considered the June and July precipitation patterns of 2007-2010 when defining the higher end of the likely range of flows. These estimates MAY be exceeded with precipitation patterns that are above what was observed over the period from 2007-2010 for the months of June and July.

*** The upper ends of rating curves in the reach from Nebraska City to Rulo are very uncertain due to rapidly changing channel conditions from anticipated upstream and downstream levee overtoppings. Therefore, an estimate of the higher forecast stage was not computed.

Missouri River Federal Levee	Stream Gage Location *	Corps Gage ID	USGS Gage ID	Estimated Stage Minimum ft	Estimated Stage Maximum ft	Overtopping Stage ft
Omaha-Council Bluffs (Levee/Flood Wall)	Omaha	OMA	06610000	34	36	40.0
L624, L627	Omaha	OMA	06610000	34	36	35.0
L611-L614	Omaha	OMA	06610000	34	36	35.0
R613, R616	Omaha	OMA	06610000	34	36	35.0
L601	Nebraska City	NCNE	06806500	27	above 28 ***	25.4
L594	Nebraska City	NCNE	06806500	27	above 28 ***	26.0
L575	Nebraska City	NCNE	06806500	27	above 28 ***	27.0
R573	Nebraska City	NCNE	06806500	27	above 28 ***	27.0
R562	Nebraska City	NCNE	06806500	27	above 28 ***	25.5
R548	Brownville	BVNE	06810070	43	above 44 ***	44.0
L550	Brownville	BVNE	06810070	43	above 44 ***	42.8
L536	Brownville	BVNE	06810070	43	above 44 ***	44.3
R520	Rulo	RUNE	06813500	25.5	above 27 ***	27.0
MRLS 512-513-R (Rulo)	Rulo	RUNE	06813500	25.5	above 27 ***	30.5
MRLS 500-R (Iowa Pt.)	St. Joseph	STJ	06818000	27	32	32.0
MRLS 497-L (Forest City)	St. Joseph	STJ	06818000	27	32	33.0
MRLS 488-L (Forbes)	St. Joseph	STJ	06818000	27	32	32.0
MRLS 482-R (Doniphan Co.)	St. Joseph	STJ	06818000	27	32	36.0
MRLS 476-L (Amazonia)	St. Joseph	STJ	06818000	27	32	36.5
MRLS 471-460-R (Elwood)	St. Joseph	STJ	06818000	27	32	32.5
MRLS 455-L (So. St. Joe)	St. Joseph	STJ	06818000	27	32	34.0
MRLS 448-443-L (Rushville)	St. Joseph	STJ	06818000	27	32	37.5
MRLS 440-R (Atchison)	Atchison	ATCM	06818300	30	34	39.0
MRLS 408-L (Farley)	Leavenworth	N/A	N/A	27	33	34.0
MRLS 400-L (Waldron)	Leavenworth	N/A	N/A	27	33	34.0
MRLS 385-L (Riverside)	KCMO	MKC	06893000	30	39	53.5
Fairfax-Jersey Ck (KCK)	KCMO	MKC	06893000	30	39	52.5
North Kansas City Airport Unit	KCMO	MKC	06893000	30	39	51.0
North Kansas City Lower Unit	KCMO	MKC	06893000	30	39	52.5
CID-KS & MO (KCK)	KCMO	MKC	06893000	30	39	51.5
East Bottoms Unit (KCMo)	KCMO	MKC	06893000	30	39	52.5
Birmingham Unit (KCMo)	KCMO	MKC	06893000	30	39	52.0
MRLS 351-R, Section 1 (Atherton)	KCMO	MKC	06893000	30	39	50.5
MRLS 246-L (Brunswick)	Glasgow	GLMO	06906500	32	37	36.5
Lower Chariton River Levee District (Glasgow)	Glasgow	GLMO	06906500	32	37	37.5
New Haven	Hermann	HEMO	06934500	27	33	38.0

* NWS River Forecast

*** The upper ends of rating curves in the reach from Nebraska City to Rulo are very uncertain due to rapidly changing channel conditions from anticipated upstream and downstream levee overtoppings. Therefore, an estimate of the higher forecast stage was not computed.

[redacted] NWO

From: Bertino, John J Jr NWO
Sent: Wednesday, June 01, 2011 12:38 PM
To: Farhat, Jody S NWD02; [redacted] NWO; Schenk, Kathryn M NWO; [redacted] NWO
Subject: FW: Oahe Spillway.docx (UNCLASSIFIED)
Attachments: Oahe Spillway.docx

Classification: UNCLASSIFIED
Caveats: NONE

All,

Can you please take a look the re-write that Katie did for this answer. I think it is very good.

Bertino

-----Original Message-----
From: Schenk, Kathryn M NWO
Sent: Wednesday, June 01, 2011 12:32 PM
To: Bertino, John J Jr NWO
Cc: Schenk, Kathryn M NWO
Subject: Oahe Spillway.docx

Classification: UNCLASSIFIED
Caveats: NONE

[redacted] NWO

From: Tipton, Robert A Col NWD
Sent: Wednesday, June 01, 2011 12:21 PM
To: Farhat, Jody S NWD02
Subject: Clarification

Jody,

Just to clarify - the travel time from Garrison to Bismarck is about 1 Day...which is the same to the headwaters of Oahe?

Robert A. Tipton, P.E.
COL, EN
Deputy Commander
Northwestern Division
U.S. Army Corps of Engineers

503-808-3701

Oahe Spillway

Question: Why are we managing the Missouri River Mainstem Dam System to minimize the potential to use the Spillway Gates at Oahe.

Answer: In the past, we have not had a need to use the spillway at Oahe. We anticipate that it will perform as designed. The Oahe spillway is an earthened spillway verses concrete spillways at the other 5 mainstem dams. Concrete spillways are less prone to erosion than earthen channels. We plan and will use the spillway, as the situation dictates.

[redacted] NWO

From: [redacted] NWO
Sent: Wednesday, June 01, 2011 12:20 PM
To: [redacted] NWD; [redacted] NWD
Cc: CENWD-EOC NWD; Farhat, Jody S NWD02
Subject: RE: Notes from the UOC Brief, Wednesday 0900 EDT 1 June 2011 (UNCLASSIFIED)
Attachments: Below Gavins - Levee Overtopping Stages - Final.pdf; Below Gavins - Range of Flows and Stages - Final.pdf

Classification: UNCLASSIFIED
Caveats: NONE

The week of 16 May:
SRST contacts rangers at Oahe about erosion around the Sitting Bull monument. This area is outside the Government land and O&M cannot be used to protect the site.

Friday, 20 May.
-Eric Stasch receives a phone call from Marty Boeckel (U.S. Senator Kent Conrad) office.
-Mr. Boeckel reported that he had talked to Everett Iron Eyes, SRST EM Mgr, and Mike Faith, Vice Chairman regarding any problem areas with the increase river flows. Mike reported that they are watching the following areas for bank erosion more closely:
1. North of Ft. Yates, near the water treatment plant and the hospital
2. South of Ft Yates by the airport, Standing Rock Farms has an intake that supplies 10 irrigation pivots.
3. South of Cannonball, irrigation intake.
4. Near the Sitting Bull Monument - the levee needs to be protected with more rock.

Wednesday, May 25.
-Oahe personnel Phil Sheffield and Patrick Feiock traveled to Ft. Yates to inspect the levee and close the gates on the levee.
-Met with Johnelle Leingang (Executive Assistant/Emergency Coordinator). Phil told her that the team was in town to inspect the levee and close the gates.
-She was also notified that if a large rain event happened and water got trapped on the island, the tribe should request pumps from USACE.
-Contact information was left with her for Patrick and Eric Stasch -The following excerpts from their trip report.
Phil and Patrick traveled to the hospital to look at the riprap and shoreline below the hospital and north to the boat ramp. The rip rap looks stable and working as designed. After looking at the rip rap, we then traveled to the northwest side of the levee in Fort Yates and started the inspection of the levee and closed the gates. The gates were closed from North to South on the levee. The overall condition of the levee looked good with some minor erosion on the top of the levee from vehicle traffic. There is also some erosion to the north of the existing rip rap on the south side of the island. Phil and Patrick looked at the erosion just north of the causeway at the Sitting Bull Monument parking lot. The team also looked at the walkway along the causeway going into Fort Yates. There was approximately 2.5 - 3 feet of elevation from the water's edge to the sidewalk.

Thursday, May 26.
-ND State EOC received a technical assistance request from SRST -Tasked Corps with request - Bob Willcuts from USACE Bismarck field office traveled to SRST -met with officials and listed to their concerns -mostly concerned with erosion above riprap at causeway and water treatment ponds and flows -Bob with the help of Dan Pridal (from Bismarck USACE field office) stated that the issue is not with the flows but with Lake Oahe elevation. At the current release plan and elevation forecast for Oahe, levels would have been low enough not create any issues except for high winds -when Bob left everyone seemed happy

Friday, May 27
- From Joel Ames to COL Ruch: As I stated, had a conference call with Chairman Murphy (SRST) and a host of others (including Asst. Sec for Indian Affairs, William Wiley) regarding the Tribes concerns with the new projections and potential impacts to the Tribe. The Chairman has a great concern about the Ft Yates water intake, feels that it will not remain functional because BOR never finished the work on the project. He wants the Corps to Riprap the Intake because BOR is not responding to the Tribe. Chairman indicated that he has stated his concerns to BOR, BOR was to get back to him. Seems now BOR will not return his calls and provide him answers.
- Received request from Standing Rock Sioux Tribe Chairman, Charles Murphy in late AM for technical and direct assistance.
- USACE EM office initiated tasker to locate team members to provide assistance

Saturday, May 28 and Sunday, May 29
- USACE team members were identified and all trip details coordinated with Joel Ames.
- Joel Ames called Chairman Murphy and Chairman Murphy mentioned that he would be unavailable for phone calls and meetings till after the Holiday weekend

Monday, 30 May
- USACE tech team (Dennis Gaare and Tricia North) and Joel Ames deployed to Ft. Yates

Tuesday, 31 May
- Teams trip report: Spent the day meeting with tribal officials and completing site visits to areas of concern on the Standing Rock reservation in and around Fort Yates. Areas visited include:

- Causeway
- Sitting Bull Historical Site
- Ft. Yates wastewater sewage lagoons
- Ft. Yates water intake facility
- Ft. Yates water intake lagoons
- Shoreline irrigation intake location
- City of Wakpala waste water treatment lagoons
- The Bay Convenience Store and Cabins (tribal owned)

All sites with the exception of the Sitting Bull Historical Site and the Ft. Yates water intake were in good condition with no erosion found. Both the Sitting Bull site and the Ft. Yates water intake are experiencing shoreline erosion. Erosion at the Sitting Bull site is approximately 100' long, with a scarp height of 6'. The Ft. Yates water intake erosion has a length of approximately 60' with a scarp height of 8'. Additional sloughing of material could occur at this location, with failure eventually leading to undermining of the water intake pipe. The erosion lengths and scarp depth dimensions will be verified tomorrow and will be included as part of the scope-of-work to be written for shoreline repair by emergency contract.

Wednesday, 01 Jun
- Tech team still on the ground preparing SOW
- Contracting team on the ground
- Construction Rep deploying today

****

Attached are the preliminary stages corresponding to the discharges.

The impacts will be greater than the 93 and 97 flood events. We have all the inundation maps complete that show the critical infrastructure affected and they can be found on our webpage:

www.nwo.usace.army.mil Click on the Flood 2011 link.

We are putting together a spreadsheet right now of the critical infrastructure.

[redacted]
Chief, Readiness Branch
U.S. Army Corps of Engineers - Omaha District
1616 Capitol Ave., Ste 9000
Omaha, NE 68102
[redacted] Office
[redacted] Blackberry
[redacted]@usace.army.mil

-----Original Message-----
From: [redacted] NWD
Sent: Wednesday, June 01, 2011 8:45 AM
To: [redacted] NWD
Cc: CENWD-EOC NWD; Farhat, Jody S NWD02; [redacted] NWO
Subject: Notes from the UOC Brief, Wednesday 0900 EDT 1 June 2011 (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

During the 0900 (R) (EDT) UOC Brief [redacted] asked about the request and response to the Standing Rock Sioux Tribe. COL Ruch had reported yesterday that Omaha was sending a person to them to provide technical assistance. Because of interest raise by FEMA and several USACE people she was concerned that there might be a problem or a potential issue. She asked that Omaha provide a summary to explain the background (history), the request and the response. She also asked that this action be reported in the Omaha SITREPs until the response is closed.

[redacted] also asked that the discussions about the Missouri River releases include stages the relate to the cfs releases, the flows are good, but stages depict impact and are better understood by the non-H&H people. She also asked for a comparison of impacts (as we know) on communities downstream and in comparison to the 93 and 97 floods. No action person was identified, but no matter who at the UOC gets this, someone in NWD will do it.

Mike

Classification: UNCLASSIFIED
Caveats: NONE

Missouri River Federal Levee	Stream Gage Location *	Corps Gage ID	USGS Gage ID	Estimated Stage Minimum ft	Estimated Stage Maximum ft	Overtopping Stage ft
Omaha-Council Bluffs (Levee/Flood Wall)	Omaha	OMA	06610000	34	36	40.0
L624, L627	Omaha	OMA	06610000	34	36	35.0
L611-L614	Omaha	OMA	06610000	34	36	35.0
R613, R616	Omaha	OMA	06610000	34	36	35.0
L601	Nebraska City	NCNE	06806500	27	above 28 ***	25.4
L594	Nebraska City	NCNE	06806500	27	above 28 ***	26.0
L575	Nebraska City	NCNE	06806500	27	above 28 ***	27.0
R573	Nebraska City	NCNE	06806500	27	above 28 ***	27.0
R562	Nebraska City	NCNE	06806500	27	above 28 ***	25.5
R548	Brownville	BVNE	06810070	43	above 44 ***	44.0
L550	Brownville	BVNE	06810070	43	above 44 ***	42.8
L536	Brownville	BVNE	06810070	43	above 44 ***	44.3
R520	Rulo	RUNE	06813500	25.5	above 27 ***	27.0
MRLS 512-513-R (Rulo)	Rulo	RUNE	06813500	25.5	above 27 ***	30.5
MRLS 500-R (Iowa Pt.)	St. Joseph	STJ	06818000	27	32	32.0
MRLS 497-L (Forest City)	St. Joseph	STJ	06818000	27	32	33.0
MRLS 488-L (Forbes)	St. Joseph	STJ	06818000	27	32	32.0
MRLS 482-R (Doniphan Co.)	St. Joseph	STJ	06818000	27	32	36.0
MRLS 476-L (Amazonia)	St. Joseph	STJ	06818000	27	32	36.5
MRLS 471-460-R (Elwood)	St. Joseph	STJ	06818000	27	32	32.5
MRLS 455-L (So. St. Joe)	St. Joseph	STJ	06818000	27	32	34.0
MRLS 448-443-L (Rushville)	St. Joseph	STJ	06818000	27	32	37.5
MRLS 440-R (Atchison)	Atchison	ATCM	06818300	30	34	39.0
MRLS 408-L (Farley)	Leavenworth	N/A	N/A	27	33	34.0
MRLS 400-L (Waldron)	Leavenworth	N/A	N/A	27	33	34.0
MRLS 385-L (Riverside)	KCMO	MKC	06893000	30	39	53.5
Fairfax-Jersey Ck (KCK)	KCMO	MKC	06893000	30	39	52.5
North Kansas City Airport Unit	KCMO	MKC	06893000	30	39	51.0
North Kansas City Lower Unit	KCMO	MKC	06893000	30	39	52.5
CID-KS & MO (KCK)	KCMO	MKC	06893000	30	39	51.5
East Bottoms Unit (KCMo)	KCMO	MKC	06893000	30	39	52.5
Birmingham Unit (KCMo)	KCMO	MKC	06893000	30	39	52.0
MRLS 351-R, Section 1 (Atherton)	KCMO	MKC	06893000	30	39	50.5
MRLS 246-L (Brunswick)	Glasgow	GLMO	06906500	32	37	36.5
Lower Chariton River Levee District (Glasgow)	Glasgow	GLMO	06906500	32	37	37.5
New Haven	Hermann	HEMO	06934500	27	33	38.0

* NWS River Forecast

*** The upper ends of rating curves in the reach from Nebraska City to Rulo are very uncertain due to rapidly changing channel conditions from anticipated upstream and downstream levee overtoppings. Therefore, an estimate of the higher forecast stage was not computed.

Gavins Point Release of 150 kcfs

Stages are based on rating curves as of:			29-May-2011	
Missouri River @	**Flood Stage**	**Gage Datum ***	**w/ Incremental Flows ****	
		ft NGVD 29	Likely Range of Flows with normal precipitation	
Sioux City	30	1056.98	170 kcfs	200 kcfs
	Stage		35	37
Decatur	35	1010.00	175 kcfs	205 kcfs
	Stage		40	42
Blair	26.5	977.60	175 kcfs	205 kcfs
	Stage		30	32
Omaha	29	948.24	175 kcfs	210 kcfs
	Stage		34	36
Nebraska City	18	905.36	200 kcfs	250 kcfs
	Stage		27	above 28 ***
Brownville	33	860.00	205 kcfs	270 kcfs
	Stage		43	above 44 ***
Rulo	17	837.23	210 kcfs	290 kcfs
	Stage		25.5	above 27 ***
St. Joseph	17	788.19	215 kcfs	320 kcfs
	Stage		27	32
Atchison	22	762.20	215 kcfs	320 kcfs
	Stage		30	34
Leavenworth	20	742.20	215 kcfs	320 kcfs
	Stage		27	33
Kansas City	32	706.40	220 kcfs	350 kcfs
	Stage		30	39
Sibley	22	683.92	220 kcfs	350 kcfs
	Stage		28	33
Napoleon	17	680.24	220 kcfs	350 kcfs
	Stage	NAVD 88	25	29

Waverly	20	646.00	230 kcfs	370 kcfs
	Stage		27	31
Miami	18	621.35	235 kcfs	370 kcfs
	Stage		26	30
Glasgow	25	586.49	250 kcfs	410 kcfs
	Stage		32	37
Boonville	21	565.42	260 kcfs	420 ~~kcfs~~
	Stage		27	33
Jefferson City	23	520.18	260 kcfs	430 kcfs
	Stage	NAVD 88	27	35
Chamois	17	502.50	290 kcfs	450 kcfs
	Stage		24	29
Gasconade	22	484.80	300 kcfs	470 kcfs
	Stage		30	35
Hermann	21	481.56	300 kcfs	470 kcfs
	Stage		27	33
Washington	20	457.97	300 kcfs	470 kcfs
	Stage	NAVD 88	23	32
St. Charles	25	413.47	300 kcfs	470 kcfs
	Stage		28	37

Notes:

* All gage datums are FT NGVD 29 unless otherwise indicated.

** Once we achieve a constant release of 150,000 cfs from Gavins Point, we expect the Missouri River to fluctuate between these likely forecasted flows. We do not expect to fall below the minimum flows once the full Gavins Point release begins. We have considered the June and July precipitation patterns of 2007-2010 when defining the higher end of the likely range of flows. These estimates MAY be exceeded with precipitation patterns that are above what was observed over the period from 2007-2010 for the months of June and July.

*** The upper ends of rating curves in the reach from Nebraska City to Rulo are very uncertain due to rapidly changing channel conditions from anticipated upstream and downstream levee overtoppings. Therefore, an estimate of the higher forecast stage was not computed.

[redacted] NWO

From: [redacted] NWO
Sent: Wednesday, June 01, 2011 12:03 PM
To: 'terry_ellsworth@fws.gov'; 'mmarohl@usbr.gov'; 'todd_frerichs@fws.gov'; 'jalee@nd.gov'; 'jkelsch@nd.gov'; 'glevi@nd.gov'; 'kkovar@daktel.com'; 'Dyke, Steve R.'; 'davek@daktel.com'; 'ggere@usbr.gov'; 'dfewless@state.nd.us'; 'kgoff@nd.gov'; 'lloyd_jones@fws.gov'; rijohnson@nd.gov; rfwagner@nd.gov; lrerickson@nd.gov; tdunnigan@KFYRTV.com; pjhuges4@bis.midco.net
Cc: 'DKrogstad@usbr.gov'; 'Aycock, Gordon L'; 'Erger, Patrick J'; [redacted] NWO; [redacted] NWD02; Farhat, Jody S NWD02; [redacted] NWO; [redacted] NWO; [redacted] NWO; [redacted] NWO; Bertino, John J Jr NWO; [redacted] NWD02; [redacted] NWO; [redacted] NWO; [redacted] NWO; [redacted] NWO; [redacted] NWO; [redacted] NWO; [redacted] NWO; Schenk, Kathryn M NWO; [redacted] NWO; [redacted] NWO; [redacted] NWO; [redacted] NWO; [redacted] NWO; [redacted]

[redacted]NWO

From: [redacted] NWD02
Sent: Wednesday, June 01, 2011 11:57 AM
To: Farhat, Jody S NWD02
Subject: RE: Historic Peaks below Gavins (UNCLASSIFIED)
Attachments: Below Gavins - Levee Overtopping Stages - Final.pdf; Below Gavins - Range of Flows and Stages - Final.pdf

Classification: UNCLASSIFIED
Caveats: NONE

Attached.

[redacted].
Reservoir Regulation Team Lead
Missouri River Basin Water Management,
Northwestern Division, USACE
[redacted]
[redacted] (fax)

-----Original Message-----
From: Farhat, Jody S NWD02
Sent: Wednesday, June 01, 2011 11:49 AM
To: [redacted] NWD02
Subject: RE: Historic Peaks below Gavins (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

And I need the yellow stage forecast tables

-----Original Message-----
From: [redacted] NWD02
Sent: Wednesday, June 01, 2011 11:45 AM
To: Farhat, Jody S NWD02
Subject: Historic Peaks below Gavins (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

Some text from [redacted] - 1952 - Sioux City, Omaha, Nebraska City

In response to a question raised yesterday during the 1800 call here is a response:

The 1952 Flood along the Missouri River had a peak discharge of 441,000 cfs at Sioux City with a stage of 24.28 feet. The gage in 1952 was at a different datum so if the 1952 flood occurred today, it would have a stage of 44.26 feet at the Sioux City gage. This year, the forecasted flow at Sioux City with a Gavins Point Release of 150,000 cfs is 170,000 to 200,000 cfs depending on tributary inflows. This would result in a stage of 35 to 37 feet at Sioux City which would be 7 to 9 feet lower than the 1952 peak stage at Sioux City.

At Omaha, the 1952 flood had a peak discharge of 396,000 cfs with a stage of 30.20 feet. In 1952, the gage at Omaha had a datum that was 10 feet higher than today. Therefore, if the 1952 flood occurred today, it would result in a stage of 40.2 feet at the Omaha gage. At Omaha, with a release of 150,000 cfs from Gavins Point, the forecasted flow is 175,000 to

210,000 cfs with a stage of 34 to 35 feet. This is 5 to 6 feet lower than the 1952 peak stage.

At Nebraska City, the 1952 flood had a peak discharge of 414,000 cfs and a peak stage of 27.66 feet. The datum of the Nebraska City gage was 1.42 feet lower in 1952 than it is today, so if the 1952 flood occurred today it would result in a stage of 26.24 feet at Nebraska City. The forecasted flow at Nebraska City this year is 200,000 to 250,000 cfs which will result in stages of 27 to 28 feet at Nebraska City, slightly higher than the 1952 flood due to levee construction and other channel changes.

[redacted].
Reservoir Regulation Team Lead
Missouri River Basin Water Management,
Northwestern Division, USACE
[redacted]
[redacted] (fax)

Classification: UNCLASSIFIED
Caveats: NONE

Classification: UNCLASSIFIED
Caveats: NONE

Classification: UNCLASSIFIED
Caveats: NONE

Missouri River Federal Levee	Stream Gage Location *	Corps Gage ID	USGS Gage ID	Estimated Stage Minimum ft	Estimated Stage Maximum ft	Overtopping Stage ft
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* NWS River Forecast

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Gavins Point Release of 150 kcfs

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Decatur	35	1010.00	175 kcfs	205 kcfs
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Blair	26.5	977.60	175 kcfs	205 kcfs
	Stage		30	32
Omaha	29	948.24	175 kcfs	210 kcfs
	Stage		34	36
Nebraska City	18	905.36	200 kcfs	250 kcfs
	Stage		27	above 28 ***
Brownville	33	860.00	205 kcfs	270 kcfs
	Stage		43	above 44 ***
Rulo	17	837.23	210 kcfs	290 kcfs
	Stage		25.5	above 27 ***
St. Joseph	17	788.19	215 kcfs	320 kcfs
	Stage		27	32
Atchison	22	762.20	215 kcfs	320 kcfs
	Stage		30	34
Leavenworth	20	742.20	215 kcfs	320 kcfs
	Stage		27	33
Kansas City	32	706.40	220 kcfs	350 kcfs
	Stage		30	39
Sibley	22	683.92	220 kcfs	350 kcfs
	Stage		28	33
Napoleon	17	680.24	220 kcfs	350 kcfs
	Stage	NAVD 88	25	29

Waverly	20	646.00	230 kcfs	370 kcfs
	Stage		27	31
Miami	18	621.35	235 kcfs	370 kcfs
	Stage		26	30
Glasgow	25	586.49	250 kcfs	410 kcfs
	Stage		32	37
Boonville	21	565.42	260 kcfs	420 kcfs
	Stage		27	33
Jefferson City	23	520.18	260 kcfs	430 kcfs
	Stage	NAVD 88	27	35
Chamois	17	502.50	290 kcfs	450 kcfs
	Stage		24	29
Gasconade	22	484.80	300 kcfs	470 kcfs
	Stage		30	35
Hermann	21	481.56	300 kcfs	470 kcfs
	Stage		27	33
Washington	20	457.97	300 kcfs	470 kcfs
	Stage	NAVD 88	23	32
St. Charles	25	413.47	300 kcfs	470 kcfs
	Stage		28	37

Notes:

* All gage datums are FT NGVD 29 unless otherwise indicated.

** Once we achieve a constant release of 150,000 cfs from Gavins Point, we expect the Missouri River to fluctuate between these likely forecasted flows. We do not expect to fall below the minimum flows once the full Gavins Point release begins. We have considered the June and July precipitation patterns of 2007-2010 when defining the higher end of the likely range of flows. These estimates MAY be exceeded with precipitation patterns that are above what was observed over the period from 2007-2010 for the months of June and July.

*** The upper ends of rating curves in the reach from Nebraska City to Rulo are very uncertain due to rapidly changing channel conditions from anticipated upstream and downstream levee overtoppings. Therefore, an estimate of the higher forecast stage was not computed.

[redacted] NWO

From: [redacted] NWO
Sent: Wednesday, June 01, 2011 11:53 AM
To: Farhat, Jody S NWD02; [redacted] NWO; [redacted] NWD02; Schenk, Kathryn M NWO; Bertino, John J Jr NWO
Cc: [redacted] NWO; [redacted] NWO; Wingert, Kevin M NWO
Subject: RE: Garrison Spillway Issue (UNCLASSIFIED)
Attachments: Spillway Gates - Elevation.pdf

Classification: UNCLASSIFIED
Caveats: FOUO

I've attached the most recent data we have on the gate elevations...

-----Original Message-----
From: Farhat, Jody S NWD02
Sent: Wednesday, June 01, 2011 11:48 AM
To: [redacted] NWO; [redacted] NWO; [redacted] NWD02; Schenk, Kathryn M NWO; Bertino, John J Jr NWO
Cc: [redacted] NWO; [redacted] NWO; Wingert, Kevin M NWO
Subject: RE: Garrison Spillway Issue (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: FOUO

[redacted] just reminded me that the likely driver on the spillway use is when we go into surcharge. The pool is currently tracking a little below the forecast put out yesterday, and we understand the actual top of gates of about 1854.5. Can someone confirm?

Jody

-----Original Message-----
From: [redacted] NWO
Sent: Wednesday, June 01, 2011 11:42 AM
To: Farhat, Jody S NWD02; [redacted] NWO; [redacted] NWD02; Schenk, Kathryn M NWO; Bertino, John J Jr NWO
Cc: [redacted] NWO; [redacted] NWO; Wingert, Kevin M NWO
Subject: RE: Garrison Spillway Issue (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: FOUO

We'll keep you posted. We plan to shift to the regulating tunnels but I do have some concerns with how the riprap will hold up with such high releases from those tunnels. We've already made two repairs and are working on a third. I'll keep you informed.

-----Original Message-----
From: Farhat, Jody S NWD02
Sent: Wednesday, June 01, 2011 11:39 AM
To: [redacted] NWO; [redacted] NWO; [redacted] NWD02; Schenk, Kathryn M NWO; Bertino, John J Jr NWO
Cc: [redacted] NWO; [redacted] NWO; Wingert, Kevin M NWO
Subject: RE: Garrison Spillway Issue (UNCLASSIFIED)

Classification: UNCLASSIFIED

Caveats: FOUO

Let us know what changes you may need and we'll do what we can to accommodate. My understanding is that we can get approximately 130 kcfs out of the powerhouse and regulation tunnels combined.

Jody

-----Original Message-----
From: [redacted] NWO
Sent: Wednesday, June 01, 2011 11:31 AM
To: Farhat, Jody S NWD02; [redacted] NWO; [redacted] NWD02; Schenk, Kathryn M NWO; Bertino, John J Jr NWO
Cc: [redacted] NWO; [redacted] NWO; Wingert, Kevin M NWO
Subject: Garrison Spillway Issue (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: FOUO

All,
We have closed the gates on the spillway and will be providing the additional 7,500 cfs releases scheduled for this morning via the regulating tunnels. The spraying water we were seeing was being caused by a spall in the concrete where the spillway pond met the spillway apron. There is rebar showing, so I told Dale to notify ED that we need a recommended fix ASAP. We will also be bolting down or welding some manhole covers to ensure they to do not lift off at higher releases. Pending the "fix" we may request a shift in our release schedule???

[redacted]
Operations Project Manager
Garrison Project

Classification: UNCLASSIFIED
Caveats: FOUO

Classification: UNCLASSIFIED
Caveats: FOUO

Classification: UNCLASSIFIED
Caveats: FOUO

Classification: UNCLASSIFIED
Caveats: FOUO

Classification: UNCLASSIFIED
Caveats: FOUO

Elevations of Spillway Gates
Garrison Project

Gate	West Side Elev.	East Side Elev.
1	1854.74	1854.76
2	1854.80	1854.82
3	1854.86	1854.85
4	1854.90	1854.91
5	1854.91	1854.89
6	1854.91	1854.89
7	1854.93	1854.96
8	1854.95	1854.96
9	1854.98	1855.01
10	1854.99	1854.94
11	1855.00	1854.99
12	1854.96	1854.93
13	1854.94	1854.93
14	1854.95	1854.86
15	1854.89	1854.87
16	1854.83	1854.76
17	1854.75	1854.79
18	1854.74	1854.74
19	1854.74	1854.76
20	1854.69	1854.67
21	1854.73	1854.71
22	1854.69	1854.65
23	1854.63	1854.55
24	1854.66	1854.64
25	1854.58	1854.60
26	1854.65	1854.61
27	1854.57	1854.54
28	1854.54	1854.55

Note: These are the correct elevations for the spillway gates at the Garrison Project.

[redacted] NWO

From: Barton, James D NWD
Sent: Wednesday, June 01, 2011 11:51 AM
To: CENWD-EOC NWD; Farhat, Jody S NWD02
Subject: RE: add NCS LNO to reservoir release notification list (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

Our information is also posted to the website, will send him the link

-----Original Message-----
From: CENWD-EOC NWD
Sent: Wednesday, June 01, 2011 8:23 AM
To: Farhat, Jody S NWD02
Cc: Barton, James D NWD
Subject: FW: add NCS LNO to reservoir release notification list
Importance: High

Jody & Jim.

Can either of you take care of this for me? Bottom line, someone from DHS has requested to be added to the automatic notification system for reservoir releases?

Please let me know. releases?

[redacted]
Contingency Operations Officer
Readiness and Contingency Operations
Northwestern Division
US Army Corps of Engineers
Desk: [redacted]
Cell: [redacted]
[redacted]@usace.army.mil
[redacted]@usace.army.smil.mil
Emergency Satellite Phone: [redacted] Emergency Cell: [redacted]

FOR OFFICIAL USE ONLY - This email and any attachments may contain information that is protected from disclosure by the Privacy Act of 1974 and should be viewed only by those with an official "need to know." If you are not the intended recipient, be aware that any disclosure, copying, distribution or use of the content of this information is prohibited. If you have received this communication in error, please notify me immediately by email, delete the original message, and destroy any hard copies you may have created. Any misuse or unauthorized disclosure may result in both civil and criminal penalties.

-----Original Message-----
From: [redacted] CIV USA NORAD USNORTHCOM HQs USACE LNO [mailto:[redacted]@northcom.mil]
Sent: Wednesday, June 01, 2011 8:17 AM
To: [redacted] NWD
Subject: add NCS LNO to reservoir release notification list
Importance: High

Classification: UNCLASSIFIED

Ray,

Issue: We/USACE need to add Mr. [redacted], robert.w.lee@hq.dhs.gov <mailto:[redacted]@hq.dhs.gov> to the notification list for reservoir releases, specifically in the North West.

Mr. Lee is the DHS representative at NORTHCOM to the NCS (National Communication System). Mr. Lee works with FEMA Regions 8-9-10 and the Communication Industry (Sprint, T-Mobile, ATT, etc.). Apparently this weekend the increased reservoir releases resulted in floating debris (i.e. logs) that cut a fiber optic line (near Minot?) and the Communication Industry was caught off guard. If we can add Mr. Lee to our notification list, he will work with the Communication Industry to increase the awareness of increased releases and corresponding increased river flow.

Thanks. Let me know once we have Lee on the notification list and I will close the loop with Bob. His contact information in addition to his email address above is

Picture (Device Independent Bitmap)

/s/

[redacted]

US Army Corps of Engineers

Representative to NORAD&USNORTHCOM

[redacted]@northcom.mil

desk phone: [redacted]

blackberry: [redacted]

www.usace.army.mil

Classification: UNCLASSIFIED
Caveats: NONE

[redacted] NWO

From: [redacted] NWD02
Sent: Wednesday, June 01, 2011 11:45 AM
To: Farhat, Jody S NWD02
Subject: Historic Peaks below Gavins (UNCLASSIFIED)
Attachments: Below Gavins - Historic Flood Events - DRAFT.PDF

Classification: UNCLASSIFIED
Caveats: NONE

Some text from [redacted] - 1952 - Sioux City, Omaha, Nebraska City

In response to a question raised yesterday during the 1800 call here is a response:

The 1952 Flood along the Missouri River had a peak discharge of 441,000 cfs at Sioux City with a stage of 24.28 feet. The gage in 1952 was at a different datum so if the 1952 flood occurred today, it would have a stage of 44.26 feet at the Sioux City gage. This year, the forecasted flow at Sioux City with a Gavins Point Release of 150,000 cfs is 170,000 to 200,000 cfs depending on tributary inflows. This would result in a stage of 35 to 37 feet at Sioux City which would be 7 to 9 feet lower than the 1952 peak stage at Sioux City.

At Omaha, the 1952 flood had a peak discharge of 396,000 cfs with a stage of 30.20 feet. In 1952, the gage at Omaha had a datum that was 10 feet higher than today. Therefore, if the 1952 flood occurred today, it would result in a stage of 40.2 feet at the Omaha gage. At Omaha, with a release of 150,000 cfs from Gavins Point, the forecasted flow is 175,000 to 210,000 cfs with a stage of 34 to 35 feet. This is 5 to 6 feet lower than the 1952 peak stage.

At Nebraska City, the 1952 flood had a peak discharge of 414,000 cfs and a peak stage of 27.66 feet. The datum of the Nebraska City gage was 1.42 feet lower in 1952 than it is today, so if the 1952 flood occurred today it would result in a stage of 26.24 feet at Nebraska City. The forecasted flow at Nebraska City this year is 200,000 to 250,000 cfs which will result in stages of 27 to 28 feet at Nebraska City, slightly higher than the 1952 flood due to levee construction and other channel changes.

[redacted].
Reservoir Regulation Team Lead
Missouri River Basin Water Management,
Northwestern Division, USACE
[redacted]
[redacted] (fax)

Classification: UNCLASSIFIED
Caveats: NONE

Missouri River @	Gage Datum *	Historic Flood Events **							
	ft NGVD 29	1881	1883	1943	1952	1984	1993	1997	2010
Sioux City	1056.98			212000	441000	104000	72000	100000	86600
				18.72	24.28	30.91	27.33	25.49	25.49
Decatur	1010						76400	100000	80600
				43.5		34.6	32.19	31.99	31.42
Blair	977.58								
						27.48	27.43		26.93
Omaha	948.24				396000	116000	115000	110000	103000
					30.2	29.02	30.26	24.13	27.6
Nebraska City	905.36				414000	182000	196000		168000
					27.66	24.78	27.19		24.94
Brownville	860								
					40.7	41.2	44.3		42.89
Rulo	837.3				358000	242000	307000		216000
					25.6	24.4	25.37		26.63
St. Joseph	788.19	370000		154000	397000	198000	335000	134000	190000
		27.2	22.8	18.3	26.82	25.86	32.07	20.52	26.17
Atchison	762.2								
		26.4		23.6	29.5		31.63	23.7	29.83
Leavenworth	742.21								
							35.34	21.8	25.5
Kansas City	706.4			366000	400000	239000	541000	190000	212000
		37.8	34.6	19.1	40.6	35.75	48.87	29.56	29.95
Sibley	683.92								
		37.8	34.6	39.1	40.6	35.75	35.91		
Napoleon	680.24								
				22.4	24.6	24.3	26.7	24.02	25.11
Waverly	646			310000	369000	245000	633000	222000	233000
			19.7	24.3	28.1	29.22	31.15	26.76	28.57
Miami	621.35								
				25.2	26.4		32.6	20	28.5
Glasgow	586.49								283000
		28.2	29.48	33.3	32.1	33.03	39.5	31.67	33.81
Boonville	565.42			366000	360000	285000	755000	281000	302000
		23.3	23.3	28.82	27.7	29.5	37.1	29.37	28.39
Jefferson City	520.13								
						25.6	38.3	28.75	27.52
Chamois	502.5								
					24		33.3	21.4	24.2
Gasconade	484.8								
						31.6	39.6	29.9	31.6
Hermann	481.56			550000	368000	314000	750000	303000	316000
				31.2	27.1	28.53	36.97	26.97	28.59
Washington	457.24								
				21.5	24.2		35.4	23.9	25.02
St. Charles	413.58								317000
						31.8	40.04	28.8	30.22

* All gage datums are in ft NGVD 29 unless otherwise indicated.

** Instantaneous peaks/stages from USGS.

[redacted] NWO

From: [redacted] NWO
Sent: Wednesday, June 01, 2011 11:42 AM
To: Farhat, Jody S NWD02; [redacted] NWO; [redacted] NWD02; Schenk, Kathryn M NWO; Bertino, John J Jr NWO
Cc: [redacted] NWO; [redacted] NWO; Wingert, Kevin M NWO
Subject: RE: Garrison Spillway Issue (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: FOUO

We'll keep you posted. We plan to shift to the regulating tunnels but I do have some concerns with how the riprap will hold up with such high releases from those tunnels. We've already made two repairs and are working on a third. I'll keep you informed.

-----Original Message-----
From: Farhat, Jody S NWD02
Sent: Wednesday, June 01, 2011 11:39 AM
To: [redacted] NWO; [redacted] NWO; [redacted] NWD02; Schenk, Kathryn M NWO; Bertino, John J Jr NWO
Cc: [redacted] NWO; [redacted] NWO; Wingert, Kevin M NWO
Subject: RE: Garrison Spillway Issue (UNCLASSIFIED)

Classification: UNCLASSIFIED
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Let us know what changes you may need and we'll do what we can to accommodate. My understanding is that we can get approximately 130 kcfs out of the powerhouse and regulation tunnels combined.

Jody

-----Original Message-----
From: [redacted] NWO
Sent: Wednesday, June 01, 2011 11:31 AM
To: Farhat, Jody S NWD02; [redacted] NWO; [redacted] NWD02; Schenk, Kathryn M NWO; Bertino, John J Jr NWO
Cc: [redacted] NWO; [redacted] NWO; Wingert, Kevin M NWO
Subject: Garrison Spillway Issue (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: FOUO

All,
We have closed the gates on the spillway and will be providing the additional 7,500 cfs releases scheduled for this morning via the regulating tunnels. The spraying water we were seeing was being caused by a spall in the concrete where the spillway pond met the spillway apron. There is rebar showing, so I told Dale to notify ED that we need a recommended fix ASAP. We will also be bolting down or welding some manhole covers to ensure they to do not lift off at higher releases. Pending the "fix" we may request a shift in our release schedule???

[redacted]
Operations Project Manager
Garrison Project

[redacted] NWO

From: Tipton, Robert A Col NWD
Sent: Wednesday, June 01, 2011 11:39 AM
To: Farhat, Jody S NWD02
Subject: WM Update for the CG
Attachments: NWD Missouri Basin Update - 061111.pptx

Jody,

Attached is how the CG would like to get the updates. The second two slides will not change after we get the travel times in and the first two would only change for the Current Stage as of that day and the Projected date of hitting the highest stages based on change conditions...as well as the ranges of course if that changes as well. All the rest of it is the same.

Don't worry about cleaning it up - just send it back to me with the first cut of the data (even if you just give me the travel times in a chart...we will add that on to the map slides) and we will clean it up on this end. I think once we get this set, it shouldn't be too hard to keep updated for the boss.

RT

Robert A. Tipton, P.E.
COL, EN
Deputy Commander
Northwestern Division
U.S. Army Corps of Engineers

503-808-3701

Missouri River Basin Stages

1 June 2011

US Army Corps of Engineers
BUILDING STRONG®

	Station	Flood Stage	Current Stage	Likely Range of Highest* Flows/Stages		Projected Date **	Record Stage (Year)
A	Bismarck						
B	Pierre						
C	Yankton						
D	Sioux City	30		170 kcfs 35	200 kcfs 37	June X	XX.X (19XX)
E	Decatur						
F	Blair						
G	Omaha						
H	Nebraska City						
I	Brownville						
J	Rulo						
K	St. Joseph						
L	Atchison						
M	Leavenworth						

Missouri River Basin Stages

1 June 2011

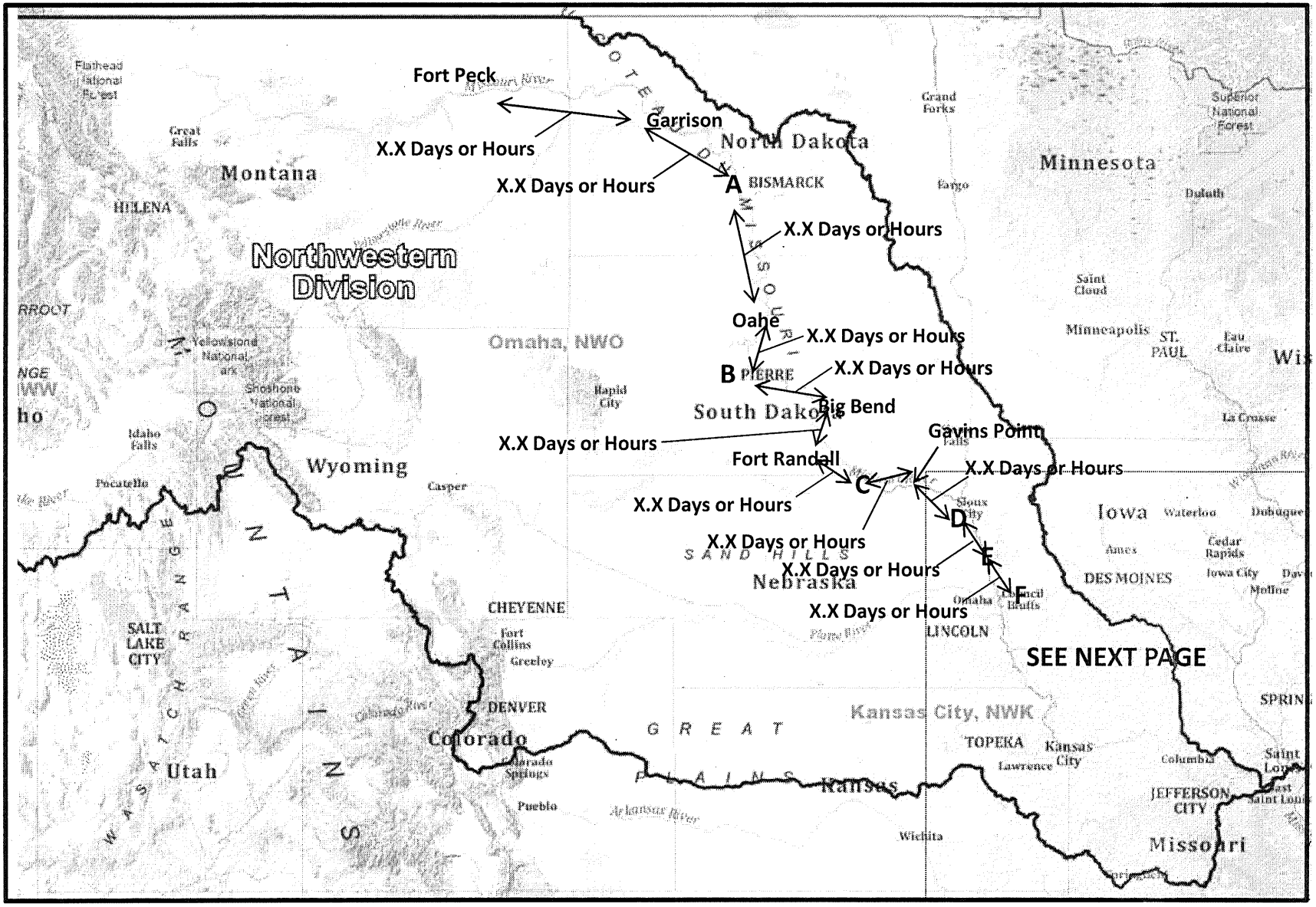
US Army Corps of Engineers
BUILDING STRONG®

	Station	Flood Stage	Current Stage	Likely Range of Highest* Flows/Stages		Projected Date **	Record Stage (Year)
N	Kansas City						
O	Sibley						
P	Napoleon						
Q	Waverly						
R	Miami						
S	Glasgow						
T	Boonville						
U	Jefferson City						
V	Chamois						
W	Gasconade						
X	Hermann						
Y	Washington						
Z	St. Charles						

Missouri River Travel Times

1 June 2011

US Army Corps of Engineers
BUILDING STRONG®



Missouri River Travel Times

1 June 2011

US Army Corps of Engineers
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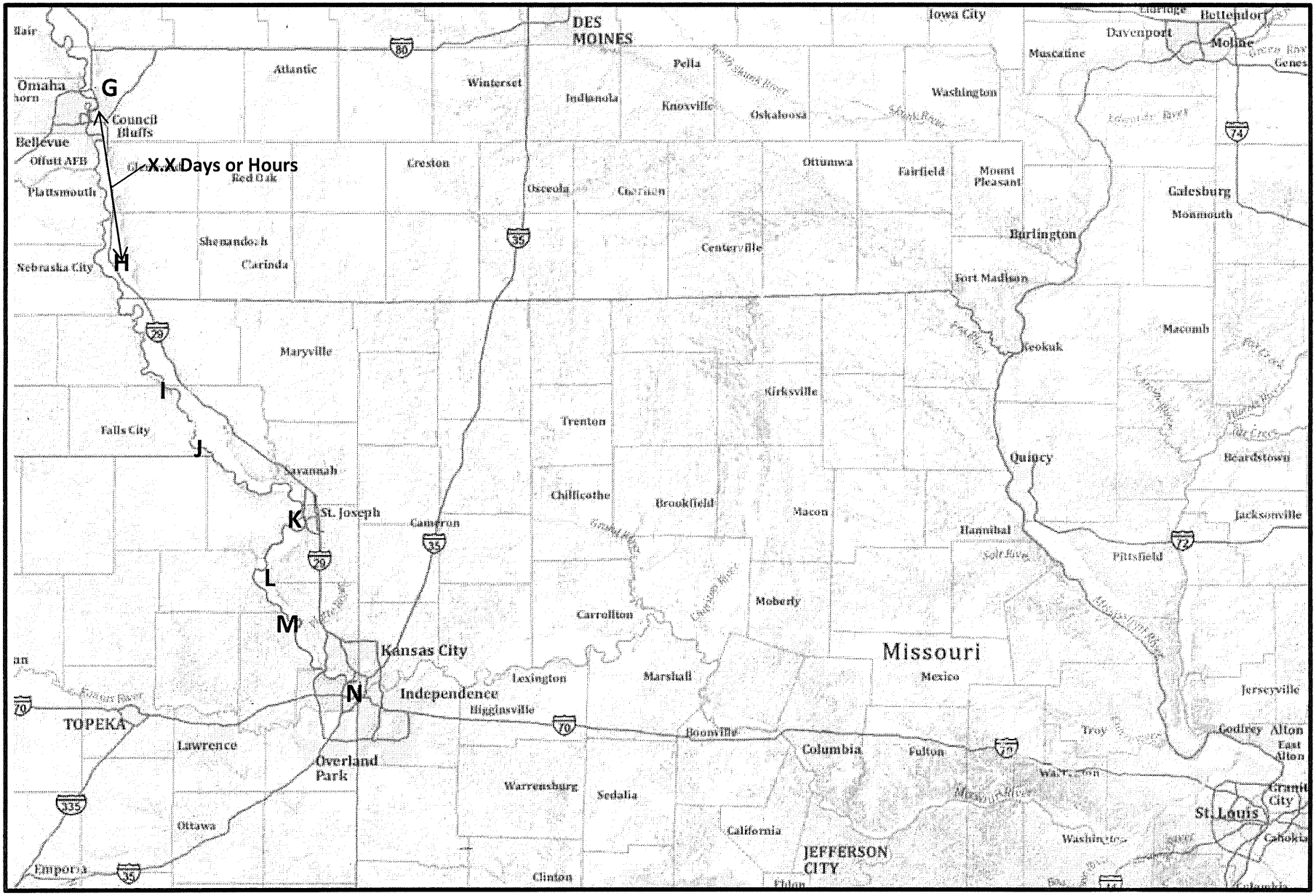

[redacted] NWO

From: [redacted] NWD02
Sent: Wednesday, June 01, 2011 11:39 AM
To: Bertino, John J Jr NWO; [redacted] NWD; Schenk, Kathryn M NWO; Farhat, Jody S NWD02
Cc: [redacted] NWO; [redacted] NWO
Subject: RE: Brief on dam safety issues (UNCLASSIFIED)
Attachments: Missouri Mainstem Dam Info May 11.xlsx

Classification: UNCLASSIFIED
Caveats: NONE

For your review. I expanded on the info compiled by Omaha District, to include DSAC ratings (as requested by Gen. McMahon), plus info on the sub-impoundments that are managed as dams.

Hopefully this is OK.

[redacted]

-----Original Message-----
From: Bertino, John J Jr NWO
Sent: Wednesday, June 01, 2011 10:11 AM
To: [redacted] NWD02
Subject: FW: Brief on dam safety issues (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

[redacted]

Col. Ruch tasked me with putting this together for Gen McMahon. Attached is what Bob Worden has put together.

Bertino

-----Original Message-----
From: [redacted] NWO
Sent: Wednesday, June 01, 2011 9:48 AM
To: Bertino, John J Jr NWO
Cc: [redacted] NWO
Subject: Brief on dam safety issues

[redacted]
U.S. Army Corps of Engineers, Omaha District
1616 Capitol Avenue
Omaha, NE 68102-9000
Phone: [redacted]

Classification: UNCLASSIFIED
Caveats: NONE

NWD Dam Safety Action Classification (DSAC) I, II, and III Project Summaries
For Missouri River Mainstem Dams

I	URGENT and COMPELLING (Unsafe)
II	URGENT (Unsafe or Potentially Unsa
III	HIGH PRIORITY (Conditionally Unsaf
IV	PRIORITY (Marginally Safe)

Name	DSAC	Location
Fort Peck Dam	IV	Montana
Garrison Dam	IV	North Dakota
Williston Levees (Garrison Sub Impoundment)	III	North Dakota
Snake Creek Embankment (Garrison Sub Impoundment)	IV	North Dakota
Oahe	III	South Dakota

Lake Pocasse (Oahe Sub Impoundment)	III	South Dakota
Fort Yates (Oahe Sub Impoundment)	III	South Dakota
Big Bend	III	South Dakota
Fort Randall	III	South Dakota
Gavins Point	III	South Dakota

fe)

e)

Remarks
1. Spillway - Concern is that at a flow of approximately 25,000 cfs there may be uplift on the lower slabs that causes them to heave up causing displacement. This may create a head cut and process up the chute.
2. Flood Tunnels - Concern is with the ring gates. In 1975 the ring gates were used and the vibration on the gates was so great that they could only leave them open for short periods of time before they would have to close them and tighten or replace bolts that had vibrated loose.
3. First Filling - This event will cause the pool to rise approximately 0.5 feet above the previous record pool. Any time the pool rises above the previous record it is reaching portions of the dam that have not been tested and there is always a concern when a portion of the Dam and abutments experiences water for the first time.
1. Spillway - Concern is that the spillway at Garrison has never been used. We have no experience of what will occur. It may or may not be a concern. 24 hour surveillance will be conducted on spillway during releases
2. First Filling - This event may cause the pool to rise above the previous record pool. Any time the pool rises above the previous record it is reaching portions of the dam that have not been tested and there is always a concern when a portion of the Dam and abutments experiences water for the first time. 3. Cavitation of flood tunnels – Cavitation was a foot thick with 20,000cfs in 1997. If cavitation starts it may continue through the concrete. Inspection will be conducted if flows are diverted through the spillway.
Insufficient freeboard. Erosion of the embankment from wave action. Damaged relief wells and collector system contributing to foundation and embankment seepage and piping.
History of seepage coming through the pervious outwash sand and gravel foundation. Joint separation in surface drainage pipes coming from catch basins adjacent to RR tracks may cause seepage. Failure of the downstream blanket could cause in seepage and piping and loss of the Lake Audubon pool.
1. Station 61+00 – Historic area of concern with regard to slope stability. Movements have been monitored for many years. Movements are small and decreasing. Visual monitoring is being conducted and movement devices are being read and evaluated for any signs of concern.
2. Spillway - Concern is that the earth-cut/rock-cut spillway at Oahe has never been used. We have no experience of what will occur. Past studies have indicated isolated erosion, but identified no head cut that would progress upstream and fail the spillway weir. 24 hour surveillance will be conducted on spillway during releases.

3. First Filling - This event has caused the pool to rise approximately 0.7 feet above the previous record pool. Any time the pool rises above the previous record it is reaching portions of the dam that have not been tested and there is always a concern when a portion of the Dam and abutments experiences water for the first time
PMF overtops the embankment. Embankment piping at the conduit. Collapse of the conduit. Potential for embankment and Foundation seepage and piping.
PMF overtops the embankment. Embankment piping at the conduit. Collapse of the conduit. Potential for embankment and Foundation seepage and piping.
1. No current dam safety concerns
2. Concern is that the spillway at Big Bend has never been used. We have no experience of what will occur. It may or may not be a concern. 24 hour surveillance will be conducted on the spillway during releases.
3. Not currently a dam safety issue. However, under seepage has been identified as an area of concern at higher pools than currently projected.
1. Under seepage - Not currently a dam safety issue. However, under seepage has been identified as an area of concern. Recent camera inspection of the drain system behind the powerhouse indicated it was generally in poor conditions. Flows are being monitored for quantity and clarity.
2. Right Spillway Wall – Erosion of right spillway wall backfill occurred during spillway releases. The gates near the right wall are not being used until the erosion is repaired. This limits the amount of releases through the spillway
1. No current dam safety concerns.
2. Under seepage - Not currently a dam safety issue. However, under seepage has been identified as an area of concern at higher pools than currently projected.

[redacted] NWO

From: [redacted] NWO
Sent: Wednesday, June 01, 2011 11:31 AM
To: Farhat, Jody S NWD02; [redacted] NWO; [redacted] NWD02; Schenk, Kathryn M NWO; Bertino, John J Jr NWO
Cc: [redacted] NWO; [redacted] NWO; Wingert, Kevin M NWO
Subject: Garrison Spillway Issue (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: FOUO

All,
We have closed the gates on the spillway and will be providing the additional 7,500 cfs releases scheduled for this morning via the regulating tunnels. The spraying water we were seeing was being caused by a spall in the concrete where the spillway pond met the spillway apron. There is rebar showing, so I told Dale to notify ED that we need a recommended fix ASAP. We will also be bolting down or welding some manhole covers to ensure they to do not lift off at higher releases. Pending the "fix" we may request a shift in our release schedule???

[redacted].
Operations Project Manager
Garrison Project

Classification: UNCLASSIFIED
Caveats: FOUO

[redacted] NWO

From: Bertino, John J Jr NWO
Sent: Wednesday, June 01, 2011 11:10 AM
To: Schenk, Kathryn M NWO; [redacted] NWO; [redacted] NWO; [redacted] NWO
Cc: Farhat, Jody S NWD02
Subject: Oahe Spillway.docx (UNCLASSIFIED)
Attachments: Oahe Spillway.docx

Classification: UNCLASSIFIED
Caveats: NONE

All,

Attached is an answer to a potential question we could get on the Oahe Spillway. Please take a look at the answer and give me any feed back.

Bertino

Classification: UNCLASSIFIED
Caveats: NONE

Oahe Spillway

Question: Why are we managing the Missouri River Mainstem Dam System to minimize the potential to use the Spillway Gates at Oahe.

Answer: The concern is that Oahe Dam is the only Missouri River Mainstem Dam that has an earth-cut/rock-cut spillway. The spillway at Oahe has never been used and therefore we have no experience of what will occur. Past studies have indicated isolated erosion, but identified no head cut that would progress upstream and fail the spillway weir. Therefore we would much rather use the concrete spillway at the other 5 projects.

[redacted] NWO

From: [redacted] NWD02
Sent: Wednesday, June 01, 2011 11:03 AM
To: Farhat, Jody S NWD02
Subject: RE: DSAC ratings (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

Yes, I'm compiling the info now.

-----Original Message-----
From: Farhat, Jody S NWD02
Sent: Wednesday, June 01, 2011 10:18 AM
To: [redacted] NWD02
Subject: DSAC ratings (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

Last night the CG asked me about the DSAC ratings of the mainstem dams. I didn't have the information with me. He said he'd talk to Surya. Can you follow up to make sure he got what he needed?

Thanks,
Jody

Classification: UNCLASSIFIED
Caveats: NONE

Classification: UNCLASSIFIED
Caveats: NONE

[redacted] NWO

From: Farhat, Jody S NWD02
Sent: Wednesday, June 01, 2011 10:50 AM
To: McMahon, John R BG NWD; Ruch, Robert J COL NWO; Hofmann, Anthony J COL NWK; Tipton, Robert A Col NWD; [redacted] NWD; [redacted] NWD; [redacted] NWD; [redacted] NWD; [redacted] NWD; mrjic@usace.army.mil; [redacted] NWO; Bertino, John J Jr NWO; [redacted] NWO; [redacted] NWO; [redacted] NWK; [redacted] NWK; [redacted] NWK; [redacted] NWK; DLL-CENWD-PDR
Subject: FW: Missouri River Main Stem Travel Times at High Flows (UNCLASSIFIED)
Attachments: Travel Times on the Missouri River Main Stem at High Flows.xlsx

Classification: UNCLASSIFIED
Caveats: NONE

Sir - attached is our estimates of travel time between the reservoirs and from Gavins Point to primary gaging stations on the lower river.

VR,
Jody

-----Original Message-----
From: [redacted] NWO
Sent: Wednesday, June 01, 2011 10:46 AM
To: Farhat, Jody S NWD02
Subject: Missouri River Main Stem Travel Times at High Flows (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

[redacted]
Missouri Basin Water Managment Division
Northwestern Division
Corps of Engineers
[redacted]
[redacted]@usace.army.mil

Classification: UNCLASSIFIED
Caveats: NONE

Classification: UNCLASSIFIED
Caveats: NONE

Travel Time to Key Locations on the Missouri River Main Stem at High Flows

		Days
Fort Peck to Garrison Headwaters		3
Garrsion to Oahe Headwaters		1
Fort Randal Dame to Gavins Point Headwaters		1
Gavins Point Dam to:		
	Sioux City	1.0
	Omaha	2.0
	Nebraska City	2.5
	St. Joseph	3.5
	Kansas City	4.0
	Waverly	4.5
	Boonville	5.5
	Hermann	6.0
	St. Louis	7.0

1-Jun-11

[redacted] NWO

From: [redacted] NWO
Sent: Wednesday, June 01, 2011 10:46 AM
To: Farhat, Jody S NWD02
Subject: Missouri River Main Stem Travel Times at High Flows (UNCLASSIFIED)
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Classification: UNCLASSIFIED
Caveats: NONE

[redacted]
Missouri Basin Water Managment Division
Northwestern Division
Corps of Engineers
[redacted]
[redacted]@usace.army.mil

Classification: UNCLASSIFIED
Caveats: NONE

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Garrsion to Oahe Headwaters		1
Fort Randal Dame to Gavins Point Headwaters		1
Gavins Point Dam to:		
	Sioux City	1.0
	Omaha	2.0
	Nebraska City	2.5
	St. Joseph	3.5
	Kansas City	4.0
	Waverly	4.5
	Boonville	5.5
	Hermann	6.0
	St. Louis	7.0

[redacted] NWO

From: Williamson, Eileen L NWO
Sent: Wednesday, June 01, 2011 10:37 AM
To: DLL-CENWD Zorinsky-Floor 3; DLL-CENWO-ALL Employees
Subject: FLOODING UPDATE - JUNE 1, 2011 (UNCLASSIFIED)
Attachments: 61NR-RIVERWATCH5-11.pdf

Classification: UNCLASSIFIED
Caveats: NONE

As Corps employees, we know that your friends and neighbors may have questions regarding the flooding.

Below is the official information that we have available.

We are posting this information to Facebook on a daily basis.
http://us.vocuspr.com/Publish/520028/PRAssetNWORiverwatch.xml

Please use this information or direct people who ask you questions to Facebook.
The less we speculate and armchair quarterback this flooding event, the more our personnel can focus on these flood fighting efforts.

This will be sent daily through the duration of the flooding event.

Regards, Eileen Williamson

Missouri River Mainstem Reservoir Bulletin (Updated 1 Jun; 0845 CDT)
-- Fort Peck (In operation since 1940) -- Midnight Elevation
* 2248.9 ft msl
* 24-hr Change (+0.5 ft)

Daily Avg. Inflow
* 78,000 cfs (31 May)
* 91,000 cfs (30 May)

Daily Avg. Release
* 9,700 cfs (31 May)
* 9,900 cfs (30 May)

Annual Flood Ctrl & Multi-Use Zone (Elevation)
* 2234 ft msl - 2246 ft msl

Exclusive Flood Ctrl Zone (Elevation)
* 2246 ft msl - 2250 ft msl

Top of Spillway Gates
* 2250 ft msl

Planned Scheduled Releases (Subject to Change)
* Peak release will be 50,000 cfs by no later than mid June.

* Reservoir will use several feet of surcharge storage above the exclusive flood control pool as spillway gates are raised.

Record Flow (Year)
* 35,000 cfs (1975)

Projected Record Flow (Date)
* 50,000 cfs (6 June)

-- Garrison (In operation since 1955) -- Midnight Elevation
* 1853.3 ft msl
* 24-hr Change (+0.2 ft)

Daily Avg. Inflow
* 137,000 cfs (31 May)
* 150,000 cfs (30 May)

Daily Avg. Release
* 85,500 cfs (31 May)
* 83,800 cfs (30 May)

Annual Flood Ctrl & Multi-Use Zone (Elevation)
* 1837.5 ft msl - 1850 ft msl

Exclusive Flood Ctrl Zone (Elevation)
* 1850 ft msl - 1854 ft msl

Top of Spillway Gates
* 1854 ft msl

River Stage (Bismarck)
* 15.83 ft (0715 CDT 6/1)
* Flood stage - 16 ft
* 15.83 ft (0715 CDT 5/31)

Planned Scheduled Releases (Subject to Change)
* Releases will be stepped up to 150,000 cfs by mid June.
* Reservoir will use several feet of surcharge storage above exclusive flood control pool as spillway gates are raised.
* First time in history, spillway gates will be used to pass floodwaters.

Record Flow (Year)
* 65,000 cfs (1975)

Projected Record Flow (Date)
* 150,000 cfs (Mid June)

-- Oahe (In operation since 1962) --
Midnight Elevation
* 1618.8 ft msl
* 24-hr Change (+0.2 ft)

Daily Avg. Inflow
* 103,000 cfs (31 May)
* 126,000 cfs (30 May)

Daily Avg. Release

* 86,300 cfs (31 May)
* 86,200 cfs (30 May)

Annual Flood Ctrl & Multi-Use Zone (Elevation)
* 1607.5 ft msl - 1620 ft msl

Exclusive Flood Ctrl Zone (Elevation)
* 1617 ft msl - 1620 ft msl

Top of Spillway Gates
* 1620 ft msl

River Stage (Pierre)
* 15.13 ft (0715 CDT 6/1)
* Flood stage - 15 ft
* 15.01 ft (0700 CDT 5/31)

Planned Scheduled Releases
(Subject to Change)
* Releases will be stepped up to 150,000 cfs by mid June.
* Reservoir will peak within a foot of the top of the spillway gates at 1619 feet.

Record Flow (Year)
* 59,000 cfs (1997)

Projected Record Flow (Date)
* 150,000 cfs (Mid June)

-- Big Bend (In operation since 1964) -- Midnight Elevation
* 1419.0 ft msl
* 24-hr Change (-0.2 ft)

Daily Avg. Inflow
* 83,000 cfs (31 May)
* 82,000 cfs (30 May)

Daily Avg. Release
* 83,900 cfs (31 May)
* 82,400 cfs (30 May)

Annual Flood Ctrl & Multi-Use Zone (Elevation)
* 1420 ft msl - 1423 ft msl

Exclusive Flood Ctrl Zone (Elevation)
* 1422 ft msl - 1423 ft msl

Top of Spillway Gates
* 1423 ft msl

Planned Scheduled Releases (Subject to Change)
* Releases will be stepped up to 150,000 cfs by mid June.
* Reservoir will remain essentially level at 1420 feet.

Record Flow (Date)
* 74,000 cfs (1997)

Projected Record Flow (Date)

* 150,000 cfs (Mid June)

-- Fort Randall (In operation since 1953) -- Midnight Elevation
* 1359.9 ft msl
* 24-hr Change (+0.4 ft)

Daily Avg. Inflow
* 94,000 cfs (31 May)
* 100,000 cfs (30 May)

Daily Avg. Release
* 76,600 cfs (31 May)
* 72,900 cfs (30 May)

Annual Flood Ctrl & Multi-Use Zone (Elevation)
* 1350 ft msl - 1375 ft msl

Exclusive Flood Ctrl Zone (Elevation)
* 1365 ft msl - 1375 ft msl

Top of Spillway Gates
* 1375 ft msl

Planned Scheduled Releases (Subject to Change)
* Releases will be stepped up to 150,000 cfs by mid June.

Record Flow (Date)
* 67,000 cfs (1997)

Projected Record Flow (Date)
* 150,000 cfs (Mid June)

-- Gavins Point (In operation since 1955) -- Midnight Elevation
* 1206.4 ft msl
* 24-hr Change (-0.2 ft)

Daily Avg. Inflow
* 76,000 cfs (31 May)
* 72,000 cfs (30 May)

Daily Avg. Release
* 77,000 cfs (31 May)
* 74,000 cfs (30 May)

Annual Flood Ctrl & Multi-Use Zone (Elevation)
* 1204.5 ft msl - 1210 ft msl

Exclusive Flood Ctrl Zone (Elevation)
* 1208 ft msl - 1210 ft msl

Top of Spillway Gates
* 1210 ft msl

Planned Scheduled Releases (Subject to Change)
* Releases will be stepped up to 150,000 cfs by mid June.

Record Flow (Date)
* 70,000 cfs (1997)

Projected Record Flow (Date)
* 150,000 cfs (Mid June)

Source of information: http://www.nwd-mr.usace.army.mil/rcc/

Missouri River Mainstem 24-Hour Forecast Conditions (Updated 1 Jun; 0845 CDT)

****
24-hr forecast (Glasgow, MT)
Today: Mostly sunny, with a high near 71. Breezy, with a east southeast wind 11 to 14 mph increasing to between 21 and 24 mph. Winds could gust as high as 34 mph.

Tonight: A 20 percent chance of showers after midnight. Partly cloudy, with a low around 54. Breezy, with a east southeast wind between 18 and 24 mph, with gusts as high as 33 mph.

Thursday: A 40 percent chance of showers and thunderstorms. Some of the storms could produce gusty winds. Partly sunny, with a high near 70. East wind 15 to 18 mph becoming south southwest 5 to 8 mph. Winds could gust as high as 25 mph.

****
24-hr forecast (Bismarck, ND)
Today: Sunny, with a high near 72. Light wind becoming southeast between 10 and 13 mph.

Tonight: A 40 percent chance of showers and thunderstorms after 1am. Partly cloudy, with a low around 56. Southeast wind between 13 and 17 mph, with gusts as high as 24 mph.

Thursday: A 20 percent chance of showers and thunderstorms before 1pm. Partly sunny, with a high near 84. Southeast wind between 16 and 18 mph, with gusts as high as 25 mph.

****
24-hr forecast (Riverdale, ND)
Today: Sunny, with a high near 71. West wind 5 to 11 mph becoming southeast.

Tonight: A 40 percent chance of showers and thunderstorms after 1am. Partly cloudy, with a low around 54. Southeast wind between 13 and 16 mph, with gusts as high as 23 mph.

Thursday: A 30 percent chance of showers and thunderstorms before 1pm. Mostly cloudy, with a high near 80. Breezy, with a southeast wind between 17 and 20 mph, with gusts as high as 28 mph. New rainfall amounts between a tenth and quarter of an inch, except higher amounts possible in thunderstorms.

****
24-hr forecast (Washburn, ND)
Today: Sunny, with a high near 71. West wind 5 to 11 mph becoming southeast.

Tonight: A 40 percent chance of showers and thunderstorms after 1 am. Partly cloudy, with a low around 54. Southeast wind between 13 and 17 mph, with gusts as high as 24 mph.

Thursday: A 30 percent chance of showers and thunderstorms before 1pm. Mostly cloudy, with a high near 82. Breezy, with a southeast wind between 17 and 20 mph, with gusts as high as 28

mph. New rainfall amounts between a tenth and quarter of an inch, except higher amounts possible in thunderstorms.

****

24-hr forecast (Mandan)
Today: Sunny, with a high near 72. Light wind becoming southeast between 10 and 13 mph.

Tonight: A 40 percent chance of showers and thunderstorms after 1am. Partly cloudy, with a low around 56. Southeast wind between 14 and 17 mph, with gusts as high as 24 mph.

Thursday: A 20 percent chance of showers and thunderstorms before 1pm. Partly sunny, with a high near 84. Breezy, with a southeast wind between 16 and 20 mph, with gusts as high as 28 mph.

****

24-hr forecast (Pierre, SD)
Today: Sunny, with a high near 77. Breezy, with a southeast wind between 10 and 20 mph.

Tonight: A 30 percent chance of showers and thunderstorms, mainly before 1am. Partly cloudy, with a low around 62. Breezy, with a east southeast wind between 15 and 20 mph.

Thursday: Mostly sunny, with a high near 88. Breezy, with a south southeast wind between 14 and 20 mph.

****

24-hr forecast (Ft. Pierre,SD)
Today: Sunny, with a high near 77. Breezy, with a east southeast wind between 10 and 20 mph.

Tonight: A 30 percent chance of showers and thunderstorms, mainly before 1am. Partly cloudy, with a low around 62. Breezy, with a east southeast wind between 14 and 20 mph.

Thursday: Mostly sunny, with a high near 89. South southeast wind between 13 and 18 mph.

****

24-hr forecast (Lower Brule)
Today: Mostly sunny, with a high near 77. Breezy, with a east southeast wind between 10 and 20 mph.

Tonight: A 30 percent chance of showers and thunderstorms. Mostly cloudy, with a low around 63. Breezy, with a east southeast wind between 17 and 20 mph.

Thursday: Partly sunny and hot, with a high near 91. Breezy, with a south southeast wind between 15 and 22 mph, with gusts as high as 31 mph.

****

24-hr forecast (Chamberlain, SD)
Today: Mostly sunny, with a high near 76. East southeast wind between 11 and 17 mph, with gusts as high as 26 mph.

Tonight: A chance of showers and thunderstorms. Increasing clouds, with a low around 64. East southeast wind between 14 and 18 mph, with gusts as high as 28 mph. Chance of precipitation is 50%.

Thursday: Partly sunny, with a high near 90. Breezy, with a south southeast wind 17 to 20 mph increasing to between 25 and 28 mph. Winds could gust as high as 37 mph.

****

24-hr forecast (Yankton, SD)
Today: Mostly sunny, with a high near 78. East southeast wind between 6 and 15 mph.

Tonight: A chance of showers and thunderstorms. Increasing clouds, with a low around 66. Southeast wind between 8 and 13 mph. Chance of precipitation is 50%.

Thursday: Partly sunny, with a high near 89. Breezy, with a south southeast wind 15 to 18 mph increasing to between 25 and 28 mph. Winds could gust as high as 37 mph.

****

24-hr forecast (Sioux City, IA)
Today: Mostly sunny, with a high near 80. Southeast wind between 7 and 16 mph.

Tonight: A chance of showers and thunderstorms. Mostly cloudy, with a low around 66. South southeast wind between 9 and 13 mph. Chance of precipitation is 50%.

Thursday: A slight chance of showers and thunderstorms before 1pm. Partly sunny, with a high near 88. Breezy, with a south southeast wind 13 to 16 mph increasing to between 22 and 25 mph. Winds could gust as high as 34 mph. Chance of precipitation is 20%.

Source of information: http://www.weather.gov/
Internet: http://www.nwo.usace.army.mil/
Facebook: http://www.facebook.com/OmahaUSACE
Twitter: http://www.twitter.com/OmahaUSACE
YouTube: http://www.youtube.com/OmahaUSACE
Flickr: http://www.flickr.com/photos/omahausace

Classification: UNCLASSIFIED
Caveats: NONE

US Army Corps of Engineers
Omaha District

Missouri River Mainstem Reservoir Bulletin (Updated 1 Jun; 0845 CDT)

Fort Peck
(In operation since 1940)

Midnight Elevation
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- 24-hr Change (+0.5 ft)

Daily Avg. Inflow
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- 9,700 cfs (31 May)
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Annual Flood Ctrl & Multi-Use Zone (Elevation)
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Planned Scheduled Releases (Subject to Change)
- Peak release will be 50,000 cfs by no later than mid June.
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Source of information: http://www.nwd-mr.usace.army.mil/rcc/

US Army Corps of Engineers
Omaha District

Missouri River Mainstem 24-Hour Forecast Conditions (Updated 1 Jun; 0845 CDT)

Fort Peck	Garrison	Oahe	Big Bend	Fort Randall	Gavins Point
24-hr forecast (Glasgow, MT) **Today:** Mostly sunny, with a high near 71. Breezy, with a east southeast wind 11 to 14 mph increasing to between 21 and 24 mph. Winds could gust as high as 34 mph. **Tonight:** A 20 percent chance of showers after midnight. Partly cloudy, with a low around 54. Breezy, with a east southeast wind between 18 and 24 mph, with gusts as high as 33 mph. **Thursday:** A 40 percent chance of showers and thunderstorms. Some of the storms could produce gusty winds. Partly sunny, with a high near 70. East wind 15 to 18 mph becoming south southwest 5 to 8 mph. Winds could gust as high as 25 mph.	***24-hr forecast (Bismarck, ND)*** **Today:** Sunny, with a high near 72. Light wind becoming southeast between 10 and 13 mph. **Tonight:** A 40 percent chance of showers and thunderstorms after 1am. Partly cloudy, with a low around 56. Southeast wind between 13 and 17 mph, with gusts as high as 24 mph. **Thursday:** A 20 percent chance of showers and thunderstorms before 1pm. Partly sunny, with a high near 84. Southeast wind between 16 and 18 mph, with gusts as high as 25 mph. ***24-hr forecast (Riverdale, ND)*** **Today:** Sunny, with a high near 71. West wind 5 to 11 mph becoming southeast. **Tonight:** A 40 percent chance of showers and thunderstorms after 1am. Partly cloudy, with a low around 54. Southeast wind between 13 and 16 mph, with gusts as high as 23 mph. **Thursday:** A 30 percent chance of showers and thunderstorms before 1pm. Mostly cloudy, with a high near 80. Breezy, with a southeast wind between 17 and 20 mph, with gusts as high as 28 mph. New rainfall amounts between a tenth and quarter of an inch, except higher amounts possible in thunderstorms.	***24-hr forecast (Pierre, SD)*** **Today:** Sunny, with a high near 77. Breezy, with a southeast wind between 10 and 20 mph. **Tonight:** A 30 percent chance of showers and thunderstorms, mainly before 1am. Partly cloudy, with a low around 62. Breezy, with a east southeast wind between 15 and 20 mph. **Thursday:** Mostly sunny, with a high near 88. Breezy, with a south southeast wind between 14 and 20 mph. ***24-hr forecast (Ft. Pierre)*** **Today:** Sunny, with a high near 77. Breezy, with a east southeast wind between 10 and 20 mph. **Tonight:** A 30 percent chance of showers and thunderstorms, mainly before 1am. Partly cloudy, with a low around 62. Breezy, with a east southeast wind between 14 and 20 mph. **Thursday:** Mostly sunny, with a high near 89. South southeast wind between 13 and 18 mph.	***24-hr forecast (Pierre, SD)*** **Today:** Sunny, with a high near 77. Breezy, with a southeast wind between 10 and 20 mph. **Tonight:** A 30 percent chance of showers and thunderstorms, mainly before 1am. Partly cloudy, with a low around 62. Breezy, with a east southeast wind between 15 and 20 mph. **Thursday:** Mostly sunny, with a high near 88. Breezy, with a south southeast wind between 14 and 20 mph. ***24-hr forecast (Ft. Pierre)*** **Today:** Sunny, with a high near 77. Breezy, with a east southeast wind between 10 and 20 mph. **Tonight:** A 30 percent chance of showers and thunderstorms, mainly before 1am. Partly cloudy, with a low around 62. Breezy, with a east southeast wind between 14 and 20 mph. **Thursday:** Mostly sunny, with a high near 89. South southeast wind between 13 and 18 mph.	***24-hr forecast (Chamberlain, SD)*** **Today:** Mostly sunny, with a high near 76. East southeast wind between 11 and 17 mph, with gusts as high as 26 mph. **Tonight:** A chance of showers and thunderstorms. Increasing clouds, with a low around 64. East southeast wind between 14 and 18 mph, with gusts as high as 28 mph. Chance of precipitation is 50%. **Thursday:** Partly sunny, with a high near 90. Breezy, with a south southeast wind 17 to 20 mph increasing to between 25 and 28 mph. Winds could gust as high as 37 mph.	***24-hr forecast (Yankton, SD)*** **Today:** Mostly sunny, with a high near 78. East southeast wind between 6 and 15 mph. **Tonight:** A chance of showers and thunderstorms. Increasing clouds, with a low around 66. Southeast wind between 8 and 13 mph. Chance of precipitation is 50%. **Thursday:** Partly sunny, with a high near 89. Breezy, with a south southeast wind 15 to 18 mph increasing to between 25 and 28 mph. Winds could gust as high as 37 mph. ***24-hr forecast (Sioux City, IA)*** **Today:** Mostly sunny, with a high near 80. Southeast wind between 7 and 16 mph. **Tonight:** A chance of showers and thunderstorms. Mostly cloudy, with a low around 66. South southeast wind between 9 and 13 mph. Chance of precipitation is 50%. **Thursday:** A slight chance of showers and thunderstorms before 1pm. Partly sunny, with a high near 88. Breezy, with a south southeast wind 13 to 16 mph increasing to between 22 and 25 mph. Winds could gust as high as 34 mph. Chance of precipitation is 20%.

Source of information: http://www.weather.gov/

US Army Corps of Engineers
Omaha District

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Internet: http://www.nwo.usace.army.mil/ Facebook: http://www.facebook.com/OmahaUSACE Twitter: http://www.twitter.com/OmahaUSACE YouTube: http://www.youtube.com/OmahaUSACE Flickr:http://www.flickr.com/photos/omahausace/

[redacted] NWO

From: Farhat, Jody S NWD02
Sent: Wednesday, June 01, 2011 10:26 AM
To: [redacted] NWO; DLL-CENWD-PDR
Subject: FW: May 2011 Inflow - Talking Points (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

FYI

-----Original Message-----
From: [redacted] NWD02
Sent: Wednesday, June 01, 2011 10:22 AM
To: Farhat, Jody S NWD02; [redacted] NWD02
Cc: [redacted] NWD02; [redacted] NWD02
Subject: May 2011 Inflow - Talking Points (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

May 2011 inflow above Sioux City was 10.5 MAF

Previous record May inflow was 7.2 MAF (1995)

May 2011 inflow into Fort Peck was 2.9 MAF; previous May FTPK record was 2.6 MAF (1975)

May 2011 inflow into Garrison was 4.4 MAF; previous May GARR record was 2.8 MAF (1978)

The May 2011 monthly inflow of 10.5 MAF is the 2nd highest monthly total from 1898-2011, exceeded only in April 1952 (13.2 MAF)

Comparing FTPK+GARR May inflows:
1952* = 1.8 + 4.9 = 6.7
1975 = 2.7 + 2.7 = 5.4
1978 = 1.8 = 2.8 = 4.6
1997 = 1.5 + 1.6 = 3.1
2011 = 2.9 + 4.4 = 7.3

1952 record monthly flows occurred in (April) = 1.8 + 4.9 = 6.7

- Kevin

[redacted].
Reservoir Regulation Team Lead
Missouri River Basin Water Management,
Northwestern Division, USACE
[redacted]
[redacted] (fax)

Classification: UNCLASSIFIED
Caveats: NONE

[redacted] NWO

From: [redacted] NWD02
Sent: Wednesday, June 01, 2011 10:22 AM
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[redacted]

[redacted]
Reservoir Regulation Team Lead
Missouri River Basin Water Management,
Northwestern Division, USACE
[redacted]
[redacted] (fax)

Classification: UNCLASSIFIED
Caveats: NONE

[redacted] NWO

From: CENWD-EOC NWD
Sent: Wednesday, June 01, 2011 10:23 AM
To: Farhat, Jody S NWD02
Cc: [redacted] NWD
Subject: FW: add NCS LNO to reservoir release notification list
Attachments: Picture (Device Independent Bitmap)

Importance: High

Jody & [redacted].

Can either of you take care of this for me? Bottom line, someone from DHS has requested to be added to the automatic notification system for reservoir releases?

Please let me know. releases?

[redacted] Raymond Love
Contingency Operations Officer
Readiness and Contingency Operations
Northwestern Division
US Army Corps of Engineers
Desk: [redacted]
Cell: [redacted]
[redacted]@usace.army.mil
[redacted]@usace.army.smil.mil
Emergency Satellite Phone: 8816-5142-9533 Emergency Cell: 503-888-3656

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-----Original Message-----
From: [redacted] V USA NORAD USNORTHCOM HQs USACE LNO [mailto:[redacted]@northcom.mil]
Sent: Wednesday, June 01, 2011 8:17 AM
To: [redacted] NWD
Subject: add NCS LNO to reservoir release notification list
Importance: High

Classification: UNCLASSIFIED

[redacted]

Issue: We/USACE need to add Mr. [redacted], [redacted]@hq.dhs.gov <mailto:robert.w.lee@hq.dhs.gov> to the notification list for reservoir releases, specifically in the North West.

Mr. [redacted] is the DHS representative at NORTHCOM to the NCS (National Communication System). Mr. [redacted] works with FEMA Regions 8-9-10 and the Communication Industry (Sprint, T-Mobile, ATT, etc.). Apparently this weekend the increased reservoir releases resulted in floating debris

(i.e. logs) that cut a fiber optic line (near Minot?) and the Communication Industry was caught off guard. If we can add Mr. Lee to our notification list, he will work with the Communication Industry to increase the awareness of increased releases and corresponding increased river flow.

Thanks. Let me know once we have Lee on the notification list and I will close the loop with Bob. His contact information in addition to his email address above is

Picture (Device Independent Bitmap)

/s/

[redacted]

US Army Corps of Engineers

Representative to NORAD&USNORTHCOM

[redacted]@northcom.mil

desk phone: [redacted]

blackberry: [redacted]

www.usace.army.mil

[redacted] NWO

From: Williamson, Eileen L NWO
Sent: Wednesday, June 01, 2011 10:21 AM
To: DLL-CENWO-EOC CMT-ALL; MRJIC
Subject: June 1, 2011 - Riverwatch - Flood Fight Storyboard Daily Update (CMT) (UNCLASSIFIED)
Attachments: Flood_Fight_Storyboard_1JUN.docx

Classification: UNCLASSIFIED
Caveats: NONE

Attached is the Riverwatch Daily Update (The last page and the last section about equipment and personnel is FOUO

Missouri River Mainstem Reservoir Bulletin (Updated 1 Jun; 0845 CDT)
-- Fort Peck (In operation since 1940) -- Midnight Elevation
* 2248.9 ft msl
* 24-hr Change (+0.5 ft)

Daily Avg. Inflow
* 78,000 cfs (31 May)
* 91,000 cfs (30 May)

Daily Avg. Release
* 9,700 cfs (31 May)
* 9,900 cfs (30 May)

Annual Flood Ctrl & Multi-Use Zone (Elevation)
* 2234 ft msl - 2246 ft msl

Exclusive Flood Ctrl Zone (Elevation)
* 2246 ft msl - 2250 ft msl

Top of Spillway Gates
* 2250 ft msl

Planned Scheduled Releases (Subject to Change)
* Peak release will be 50,000 cfs by no later than mid June.
* Reservoir will use several feet of surcharge storage above the exclusive flood control pool as spillway gates are raised.

Record Flow (Year)
* 35,000 cfs (1975)

Projected Record Flow (Date)
* 50,000 cfs (6 June)

-- Garrison (In operation since 1955) -- Midnight Elevation
* 1853.3 ft msl
* 24-hr Change (+0.2 ft)

Daily Avg. Inflow
* 137,000 cfs (31 May)
* 150,000 cfs (30 May)

Daily Avg. Release

* 85,500 cfs (31 May)
* 83,800 cfs (30 May)

Annual Flood Ctrl & Multi-Use Zone (Elevation)
* 1837.5 ft msl - 1850 ft msl

Exclusive Flood Ctrl Zone (Elevation)
* 1850 ft msl - 1854 ft msl

Top of Spillway Gates
* 1854 ft msl

River Stage (Bismarck)
* 15.83 ft (0715 CDT 6/1)
* Flood stage - 16 ft
* 15.83 ft (0715 CDT 5/31)

Planned Scheduled Releases (Subject to Change)
* Releases will be stepped up to 150,000 cfs by mid June.
* Reservoir will use several feet of surcharge storage above exclusive flood control pool as spillway gates are raised.
* First time in history, spillway gates will be used to pass floodwaters.

Record Flow (Year)
* 65,000 cfs (1975)

Projected Record Flow (Date)
* 150,000 cfs (Mid June)

-- Oahe (In operation since 1962) --
Midnight Elevation
* 1618.8 ft msl
* 24-hr Change (+0.2 ft)

Daily Avg. Inflow
* 103,000 cfs (31 May)
* 126,000 cfs (30 May)

Daily Avg. Release
* 86,300 cfs (31 May)
* 86,200 cfs (30 May)

Annual Flood Ctrl & Multi-Use Zone (Elevation)
* 1607.5 ft msl - 1620 ft msl

Exclusive Flood Ctrl Zone (Elevation)
* 1617 ft msl - 1620 ft msl

Top of Spillway Gates
* 1620 ft msl

River Stage (Pierre)
* 15.13 ft (0715 CDT 6/1)
* Flood stage - 15 ft
* 15.01 ft (0700 CDT 5/31)

Planned Scheduled Releases

(Subject to Change)
* Releases will be stepped up to 150,000 cfs by mid June.
* Reservoir will peak within a foot of the top of the spillway gates at 1619 feet.

Record Flow (Year)
* 59,000 cfs (1997)

Projected Record Flow (Date)
* 150,000 cfs (Mid June)

-- Big Bend (In operation since 1964) -- Midnight Elevation
* 1419.0 ft msl
* 24-hr Change (-0.2 ft)

Daily Avg. Inflow
* 83,000 cfs (31 May)
* 82,000 cfs (30 May)

Daily Avg. Release
* 83,900 cfs (31 May)
* 82,400 cfs (30 May)

Annual Flood Ctrl & Multi-Use Zone (Elevation)
* 1420 ft msl - 1423 ft msl

Exclusive Flood Ctrl Zone (Elevation)
* 1422 ft msl - 1423 ft msl

Top of Spillway Gates
* 1423 ft msl

Planned Scheduled Releases (Subject to Change)
* Releases will be stepped up to 150,000 cfs by mid June.
* Reservoir will remain essentially level at 1420 feet.

Record Flow (Date)
* 74,000 cfs (1997)

Projected Record Flow (Date)
* 150,000 cfs (Mid June)

-- Fort Randall (In operation since 1953) -- Midnight Elevation
* 1359.9 ft msl
* 24-hr Change (+0.4 ft)

Daily Avg. Inflow
* 94,000 cfs (31 May)
* 100,000 cfs (30 May)

Daily Avg. Release
* 76,600 cfs (31 May)
* 72,900 cfs (30 May)

Annual Flood Ctrl & Multi-Use Zone (Elevation)
* 1350 ft msl - 1375 ft msl

Exclusive Flood Ctrl Zone (Elevation)

* 1365 ft msl - 1375 ft msl

Top of Spillway Gates
* 1375 ft msl

Planned Scheduled Releases (Subject to Change)
* Releases will be stepped up to 150,000 cfs by mid June.

Record Flow (Date)
* 67,000 cfs (1997)

Projected Record Flow (Date)
* 150,000 cfs (Mid June)

-- Gavins Point (In operation since 1955) -- Midnight Elevation
* 1206.4 ft msl
* 24-hr Change (-0.2 ft)

Daily Avg. Inflow
* 76,000 cfs (31 May)
* 72,000 cfs (30 May)

Daily Avg. Release
* 77,000 cfs (31 May)
* 74,000 cfs (30 May)

Annual Flood Ctrl & Multi-Use Zone (Elevation)
* 1204.5 ft msl - 1210 ft msl

Exclusive Flood Ctrl Zone (Elevation)
* 1208 ft msl - 1210 ft msl

Top of Spillway Gates
* 1210 ft msl

Planned Scheduled Releases (Subject to Change)
* Releases will be stepped up to 150,000 cfs by mid June.

Record Flow (Date)
* 70,000 cfs (1997)

Projected Record Flow (Date)
* 150,000 cfs (Mid June)

Source of information: http://www.nwd-mr.usace.army.mil/rcc/

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****
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Today: Mostly sunny, with a high near 71. Breezy, with a east southeast wind 11 to 14 mph increasing to between 21 and 24 mph. Winds could gust as high as 34 mph.

Tonight: A 20 percent chance of showers after midnight. Partly cloudy, with a low around 54. Breezy, with a east southeast wind between 18 and 24 mph, with gusts as high as 33 mph.

Thursday: A 40 percent chance of showers and thunderstorms. Some of the storms could produce gusty winds. Partly sunny, with a high near 70. East wind 15 to 18 mph becoming south southwest 5 to 8 mph. Winds could gust as high as 25 mph.

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24-hr forecast (Bismarck, ND)
Today: Sunny, with a high near 72. Light wind becoming southeast between 10 and 13 mph.

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Twitter: http://www.twitter.com/OmahaUSACE
YouTube: http://www.youtube.com/OmahaUSACE Flickr:http://www.flickr.com/photos/omahausace/

ALL CONTENT BELOW IS FOUO
Missouri River Flooding (Logistics) (Updated 1 Jun 11) Personnel Deployed
* 3 (Glasgow, MT)
* 1 (Elk Mountain, WY)
* 19 (Bismarck, ND)
* 3 (Fort Yates, ND)
* 4 (Williston, ND)
* 10 (Pierre, SD)
* 7 (Sioux City, IA)
* 2 (Missouri River Survey)
* 8 (North Platte, NE)
* 2 (Niobrara, NE)
* 1 (Kansas City, MO)

Equipment Deployed
Pumps:
6" - 1 Deployed
10" - 3 Deployed
12" - 6 Deployed
16" - 7 Deployed

Manual Sandbag Filling machines 1500/hour production capability - 1 Deployed

Expedient Flood Fight Products:
Hesco - 28,044 LF Deployed
Rapid Deployable Flood Wall - 500 LF Deployed
Sandbags:
Approximately 8.5 million sandbags have been shipped thus far from CENWO and other districts/locations.
Approximately 1.8 million sandbags due in from a vendor.
Approximately 3.6 million sandbags being picked up and in transit between June 1 and June 2 from Vicksburg MS and Morgan City LA.
650 sandbags coming from CENWS
This number changes constantly due to requirements.
Approximately 2,245,000 Issued From CENWO allotment

Source of information: CMT Brief (31 May 11)

****

Eileen L. Williamson
Public Affairs Specialist
U.S. Army Corps of Engineers
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Mobile: 402-779-1448
eileen.l.williamson@usace.army.mil
Internet: nwo.usace.army.mil
Facebook: facebook.com/OmahaUSACE
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****

Classification: UNCLASSIFIED
Caveats: NONE

US Army Corps of Engineers
Omaha District

Missouri River Mainstem Reservoir Bulletin (Updated 1 Jun; 0845 CDT)

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Top of Spillway Gates
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- 35,000 cfs (1975)

Projected Record Flow (Date)
- 50,000 cfs (6 June)

Garrison
(In operation since 1955)

Midnight Elevation
- 1853.3 ft msl
- 24-hr Change (+0.2 ft)

Daily Avg. Inflow
- 137,000 cfs (31 May)
- 150,000 cfs (30 May)

Daily Avg. Release
- 85,500 cfs (31 May)
- 83,800 cfs (30 May)

Annual Flood Ctrl & Multi-Use Zone (Elevation)
- 1837.5 ft msl – 1850 ft msl

Exclusive Flood Ctrl Zone (Elevation)
- 1850 ft msl – 1854 ft msl

Top of Spillway Gates
- 1854 ft msl

River Stage (Bismarck)
- 15.83 ft (0715 CDT 6/1)
- Flood stage – 16 ft
- 15.83 ft (0715 CDT 5/31)

Planned Scheduled Releases (Subject to Change)
- Releases will be stepped up to 150,000 cfs by mid June.
- Reservoir will use several feet of surcharge storage above exclusive flood control pool as spillway gates are raised.
- First time in history, spillway gates will be used to pass floodwaters.

Record Flow (Year)
- 65,000 cfs (1975)

Projected Record Flow (Date)
- 150,000 cfs (Mid June)

Oahe
(In operation since 1962)

Midnight Elevation
- 1618.8 ft msl
- 24-hr Change (+0.2 ft)

Daily Avg. Inflow
- 103,000 cfs (31 May)
- 126,000 cfs (30 May)

Daily Avg. Release
- 86,300 cfs (31 May)
- 86,200 cfs (30 May)

Annual Flood Ctrl & Multi-Use Zone (Elevation)
- 1607.5 ft msl – 1620 ft msl

Exclusive Flood Ctrl Zone (Elevation)
- 1617 ft msl – 1620 ft msl

Top of Spillway Gates
- 1620 ft msl

River Stage (Pierre)
- 15.13 ft (0715 CDT 6/1)
- Flood stage – 15 ft
- 15.01 ft (0700 CDT 5/31)

Planned Scheduled Releases (Subject to Change)
- Releases will be stepped up to 150,000 cfs by mid June.
- Reservoir will peak within a foot of the top of the spillway gates at 1619 feet.

Record Flow (Year)
- 59,000 cfs (1997)

Projected Record Flow (Date)
- 150,000 cfs (Mid June)

Big Bend
(In operation since 1964)

Midnight Elevation
- 1419.0 ft msl
- 24-hr Change (-0.2 ft)

Daily Avg. Inflow
- 83,000 cfs (31 May)
- 82,000 cfs (30 May)

Daily Avg. Release
- 83,900 cfs (31 May)
- 82,400 cfs (30 May)

Annual Flood Ctrl & Multi-Use Zone (Elevation)
- 1420 ft msl – 1423 ft msl

Exclusive Flood Ctrl Zone (Elevation)
- 1422 ft msl – 1423 ft msl

Top of Spillway Gates
- 1423 ft msl

Planned Scheduled Releases (Subject to Change)
- Releases will be stepped up to 150,000 cfs by mid June.
- Reservoir will remain essentially level at 1420 feet.

Record Flow (Date)
- 74,000 cfs (1997)

Projected Record Flow (Date)
- 150,000 cfs (Mid June)

Fort Randall
(In operation since 1953)

Midnight Elevation
- 1359.9 ft msl
- 24-hr Change (+0.4 ft)

Daily Avg. Inflow
- 94,000 cfs (31 May)
- 100,000 cfs (30 May)

Daily Avg. Release
- 76,600 cfs (31 May)
- 72,900 cfs (30 May)

Annual Flood Ctrl & Multi-Use Zone (Elevation)
- 1350 ft msl – 1375 ft msl

Exclusive Flood Ctrl Zone (Elevation)
- 1365 ft msl – 1375 ft msl

Top of Spillway Gates
- 1375 ft msl

Planned Scheduled Releases (Subject to Change)
- Releases will be stepped up to 150,000 cfs by mid June.

Record Flow (Date)
- 67,000 cfs (1997)

Projected Record Flow (Date)
- 150,000 cfs (Mid June)

Gavins Point
(In operation since 1955)

Midnight Elevation
- 1206.4 ft msl
- 24-hr Change (-0.2 ft)

Daily Avg. Inflow
- 76,000 cfs (31 May)
- 72,000 cfs (30 May)

Daily Avg. Release
- 77,000 cfs (31 May)
- 74,000 cfs (30 May)

Annual Flood Ctrl & Multi-Use Zone (Elevation)
- 1204.5 ft msl – 1210 ft msl

Exclusive Flood Ctrl Zone (Elevation)
- 1208 ft msl – 1210 ft msl

Top of Spillway Gates
- 1210 ft msl

Planned Scheduled Releases (Subject to Change)
- Releases will be stepped up to 150,000 cfs by mid June.

Record Flow (Date)
- 70,000 cfs (1997)

Projected Record Flow (Date)
- 150,000 cfs (Mid June)

Source of information: http://www.nwd-mr.usace.army.mil/rcc/

US Army Corps of Engineers
Omaha District

Missouri River Mainstem 24-Hour Forecast Conditions (Updated 1 Jun; 0845 CDT)

Fort Peck	Garrison	Oahe	Big Bend	Fort Randall	Gavins Point
24-hr forecast (Glasgow, MT) **Today:** Mostly sunny, with a high near 71. Breezy, with a east southeast wind 11 to 14 mph increasing to between 21 and 24 mph. Winds could gust as high as 34 mph. **Tonight:** A 20 percent chance of showers after midnight. Partly cloudy, with a low around 54. Breezy, with a east southeast wind between 18 and 24 mph, with gusts as high as 33 mph. **Thursday:** A 40 percent chance of showers and thunderstorms. Some of the storms could produce gusty winds. Partly sunny, with a high near 70. East wind 15 to 18 mph becoming south southwest 5 to 8 mph. Winds could gust as high as 25 mph.	***24-hr forecast (Bismarck, ND)*** **Today:** Sunny, with a high near 72. Light wind becoming southeast between 10 and 13 mph. **Tonight:** A 40 percent chance of showers and thunderstorms after 1am. Partly cloudy, with a low around 56. Southeast wind between 13 and 17 mph, with gusts as high as 24 mph. **Thursday:** A 20 percent chance of showers and thunderstorms before 1pm. Partly sunny, with a high near 84. Southeast wind between 16 and 18 mph, with gusts as high as 25 mph. ***24-hr forecast (Riverdale, ND)*** **Today:** Sunny, with a high near 71. West wind 5 to 11 mph becoming southeast. **Tonight:** A 40 percent chance of showers and thunderstorms after 1am. Partly cloudy, with a low around 54. Southeast wind between 13 and 16 mph, with gusts as high as 23 mph. **Thursday:** A 30 percent chance of showers and thunderstorms before 1pm. Mostly cloudy, with a high near 80. Breezy, with a southeast wind between 17 and 20 mph, with gusts as high as 28 mph. New rainfall amounts between a tenth and quarter of an inch, except higher amounts possible in thunderstorms.	***24-hr forecast (Pierre, SD)*** **Today:** Sunny, with a high near 77. Breezy, with a southeast wind between 10 and 20 mph. **Tonight:** A 30 percent chance of showers and thunderstorms, mainly before 1am. Partly cloudy, with a low around 62. Breezy, with a east southeast wind between 15 and 20 mph. **Thursday:** Mostly sunny, with a high near 88. Breezy, with a south southeast wind between 14 and 20 mph. ***24-hr forecast (Ft. Pierre)*** **Today:** Sunny, with a high near 77. Breezy, with a east southeast wind between 10 and 20 mph. **Tonight:** A 30 percent chance of showers and thunderstorms, mainly before 1am. Partly cloudy, with a low around 62. Breezy, with a east southeast wind between 14 and 20 mph. **Thursday:** Mostly sunny, with a high near 89. South southeast wind between 13 and 18 mph.	***24-hr forecast (Pierre, SD)*** **Today:** Sunny, with a high near 77. Breezy, with a southeast wind between 10 and 20 mph. **Tonight:** A 30 percent chance of showers and thunderstorms, mainly before 1am. Partly cloudy, with a low around 62. Breezy, with a east southeast wind between 15 and 20 mph. **Thursday:** Mostly sunny, with a high near 88. Breezy, with a south southeast wind between 14 and 20 mph. ***24-hr forecast (Ft. Pierre)*** **Today:** Sunny, with a high near 77. Breezy, with a east southeast wind between 10 and 20 mph. **Tonight:** A 30 percent chance of showers and thunderstorms, mainly before 1am. Partly cloudy, with a low around 62. Breezy, with a east southeast wind between 14 and 20 mph. **Thursday:** Mostly sunny, with a high near 89. South southeast wind between 13 and 18 mph.	***24-hr forecast (Chamberlain, SD)*** **Today:** Mostly sunny, with a high near 76. East southeast wind between 11 and 17 mph, with gusts as high as 26 mph. **Tonight:** A chance of showers and thunderstorms. Increasing clouds, with a low around 64. East southeast wind between 14 and 18 mph, with gusts as high as 28 mph. Chance of precipitation is 50%. **Thursday:** Partly sunny, with a high near 90. Breezy, with a south southeast wind 17 to 20 mph increasing to between 25 and 28 mph. Winds could gust as high as 37 mph.	***24-hr forecast (Yankton, SD)*** **Today:** Mostly sunny, with a high near 78. East southeast wind between 6 and 15 mph. **Tonight:** A chance of showers and thunderstorms. Increasing clouds, with a low around 66. Southeast wind between 8 and 13 mph. Chance of precipitation is 50%. **Thursday:** Partly sunny, with a high near 89. Breezy, with a south southeast wind 15 to 18 mph increasing to between 25 and 28 mph. Winds could gust as high as 37 mph. ***24-hr forecast (Sioux City, IA)*** **Today:** Mostly sunny, with a high near 80. Southeast wind between 7 and 16 mph. **Tonight:** A chance of showers and thunderstorms. Mostly cloudy, with a low around 66. South southeast wind between 9 and 13 mph. Chance of precipitation is 50%. **Thursday:** A slight chance of showers and thunderstorms before 1pm. Partly sunny, with a high near 88. Breezy, with a south southeast wind 13 to 16 mph increasing to between 22 and 25 mph. Winds could gust as high as 34 mph. Chance of precipitation is 20%.

Source of information: http://www.weather.gov/

US Army Corps of Engineers
Omaha District

Missouri River Mainstem 24-Hour Forecast Conditions (Updated 1 Jun; 0845 CDT)

Fort Peck	Garrison	Oahe	Big Bend	Fort Randall	Gavins Point
	24-hr forecast (Washburn, ND) **Today:** Sunny, with a high near 71. West wind 5 to 11 mph becoming southeast. **Tonight:** A 40 percent chance of showers and thunderstorms after 1 am. Partly cloudy, with a low around 54. Southeast wind between 13 and 17 mph, with gusts as high as 24 mph. **Thursday:** A 30 percent chance of showers and thunderstorms before 1pm. Mostly cloudy, with a high near 82. Breezy, with a southeast wind between 17 and 20 mph, with gusts as high as 28 mph. New rainfall amounts between a tenth and quarter of an inch, except higher amounts possible in thunderstorms. ***24-hr forecast (Mandan)*** **Today:** Sunny, with a high near 72. Light wind becoming southeast between 10 and 13 mph. **Tonight:** A 40 percent chance of showers and thunderstorms after 1am. Partly cloudy, with a low around 56. Southeast wind between 14 and 17 mph, with gusts as high as 24 mph. **Thursday:** A 20 percent chance of showers and thunderstorms before 1pm. Partly sunny, with a high near 84. Breezy, with a southeast wind between 16 and 20 mph, with gusts as high as 28 mph.	***24-hr forecast (Lower Brule)*** **Today:** Mostly sunny, with a high near 77. Breezy, with a east southeast wind between 10 and 20 mph. **Tonight:** A 30 percent chance of showers and thunderstorms. Mostly cloudy, with a low around 63. Breezy, with a east southeast wind between 17 and 20 mph. **Thursday:** Partly sunny and hot, with a high near 91. Breezy, with a south southeast wind between 15 and 22 mph, with gusts as high as 31 mph.	***24-hr forecast (Lower Brule)*** **Today:** Mostly sunny, with a high near 77. Breezy, with a east southeast wind between 10 and 20 mph. **Tonight:** A 30 percent chance of showers and thunderstorms. Mostly cloudy, with a low around 63. Breezy, with a east southeast wind between 17 and 20 mph. **Thursday:** Partly sunny and hot, with a high near 91. Breezy, with a south southeast wind between 15 and 22 mph, with gusts as high as 31 mph.		

Source of information: http://www.weather.gov/

Internet: http://www.nwo.usace.army.mil/ Facebook: http://www.facebook.com/OmahaUSACE Twitter: http://www.twitter.com/OmahaUSACE YouTube: http://www.youtube.com/OmahaUSACE Flickr:http://www.flickr.com/photos/omahausace/

US Army Corps of Engineers
Omaha District

Missouri River Flooding (Logistics) (Updated 1 Jun 11)

Personnel Deployed

- 3 (Glasgow, MT)
- 1 (Elk Mountain, WY)
- 19 (Bismarck, ND)
- 3 (Fort Yates, ND)
- 4 (Williston, ND)
- 10 (Pierre, SD)
- 7 (Sioux City, IA)
- 2 (Missouri River Survey)
- 8 (North Platte, NE)
- 2 (Niobrara, NE)
- 1 (Kansas City, MO)

Equipment Deployed

Pumps:
6" - 1 Deployed
10" - 3 Deployed
12" - 6 Deployed
16" - 7 Deployed

Manual Sandbag Filling machines 1500/hour production capability - 1 Deployed

Expedient Flood Fight Products:
Hesco - 28,044 LF Deployed
Rapid Deployable Flood Wall - 500 LF Deployed

Sandbags:
Approximately 8.5 million sandbags have been shipped thus far from CENWO and other districts/locations.
Approximately 1.8 million sandbags due in from a vendor.
Approximately 3.6 million sandbags being picked up and in transit between June 1 and June 2 from Vicksburg MS and Morgan City LA.
650 sandbags coming from CENWS
This number changes constantly due to requirements.
Approximately 2,245,000 Issued From CENWO allotment

Source of information: CMT Brief (31 May 11)

[redacted] NWO

From: [redacted] NWD02
Sent: Wednesday, June 01, 2011 10:14 AM
To: DLL-CENWD-PDR; [redacted] NWO
Subject: Wed Rain Report

```
1NWSRFS FORECAST SYSTEM - PROGRAM PPDUTIL  (VERSION: ob8.1      - 03/20/07)   USER=MBRFC
DATE=Jun  1, 2011 - 14:02:15
0

 >>>>>>>> PAGESIZE 60
 >>>>>>>> DUMPPP24 * *
0**NOTE** DATA FOR THE PERIOD 06/01/2011-12Z    THROUGH 06/01/2011-12Z    WILL BE PROCESSED.
          QUANTITY DESC (0.01)
          OBSONLY
          END
0PP24 DATA FOR 06/01/11-12Z    THRU 06/01/11-12Z
0      - = MISSING VALUE OR SUM      E = ESTIMATED VALUE      P = PARTIAL SUM
0STATION                                                    PERIOD
 ID        DESCRIPTION            STATE     06/01     SUM
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 TGSN8     TAGUS                  ND         2.00       2.01
 BERN8     BERTHOLD 4NW           ND         1.76E      1.76
 BRTN8     BERTHOLD               ND         1.71E      1.72
 KNMN8     KENMARE 1WSW           ND         0.95E      0.95
 FHMN8     FOXHOLM 7N             ND         0.80E      0.81
 STAN8     STANLEY 3NNW           ND         0.73E      0.74
 RVLS2     RAUVILLE 2S            SD         0.71       0.71
 BBLN8     BOWBELLS               ND         0.66E      0.67
 FOXN8     FOXHOLM 7N             ND         0.64E      0.64
 MCRW4     MILL CREEK RAWS        WY         0.58       0.58
 RAUN8     RAUB 5NNE              ND         0.55E      0.56
 BWBN8     BOWBELLS 1N            ND         0.52E      0.52
 RSSN8     ROSS                   ND         0.51E      0.51
 BLDW4     BALD MOUNTAIN          WY         0.50       0.50
 MIB       MINOT AFB              ND         0.48       0.48
 PLZN8     PLAZA 10S              ND         0.44E      0.44
 LBZM7     MACON, LTL CHARITON    MO         0.42       0.42
 NTWN8     NEW TOWN 4W            ND         0.41E      0.41
 PRIM7     PRAIRIE HILL 2WNW      MO         0.41       0.41
 CLVM8     CALVERT CREEK          MT         0.40       0.41
 DALM8     DALY CREEK             MT         0.40       0.41
 HMKW4     HAMS FORK              WY         0.40       0.41
 BYNM7     BYNUMVILLE 1E          MO         0.37E      0.38
 GAKN8     GARRISON ABV SKUNK     ND         0.37E      0.38
 HYRW4     HYATT RANCH            WY         0.37E      0.38
 ATAM7     ATLANTA RAWS           MO         0.35E      0.35
 MEXM7     MEXICO                 MO         0.35       0.35
 0545N8    BATTLEVIEW 5SW         ND         0.32E      0.32
 MOFSA007  RUSH HILL 3S           MO         0.31E      0.31
 SQFM8     WISDOM 12NNE           MT         0.31E      0.31
 ATLM7     ATLANTA                MO         0.30E      0.31
 BSCW4     BASE CAMP, MORAN 9NE   WY         0.30       0.31
 BOXM8     BOX CANYON             MT         0.30       0.31
 BRCW4     BURROUGHS CREEK        WY         0.30       0.31
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CMBM8	COMBINATION	MT	0.30	0.31
CPCM8	COPPER CAMP	MT	0.30	0.31
CRYM8	CRYSTAL LAKE	MT	0.30	0.31
HBBW4	HOBBS PARK	WY	0.30	0.31
HOOM8	HOODOO BASIN	MT	0.30	0.31
LWSW4	LEWIS LAKE DIVIDE	WY	0.30	0.31
LCKM8	LICK CREEK	MT	0.30	0.31
NFLW4	NEW FORK LAKE	WY	0.30	0.31
NFJM8	NORTH FORK JOCKO	MT	0.30	0.31
SPKW4	SCHOOLHOUSE PARK	WY	0.30	0.31
WHTM8	WHITE MILL	MT	0.30	0.31
ORHM8	OPHEIM 21NW, ROCK CR	MT	0.28	0.28
SKLM8	SKYLARK TRAIL	MT	0.28E	0.28
ELDM7	ELDON	MO	0.27	0.28

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0STATION ID	DESCRIPTION	STATE	06/01	PERIOD SUM
MBRM8	MAIN BOULDER RAWS	MT	0.27E	0.28
GASN8	MINOT 4W	ND	0.27E	0.28
MOT	MINOT INTL AIRPORT	ND	0.27	0.28
FLDW4	BUFFALO 15W	WY	0.26E	0.26
WCCS2	CROOKS, WILLOW CR	SD	0.26	0.26
LNBM8	LINDBERGH LAKE	MT	0.26E	0.26
PWLN8	POWERS LAKE 1N	ND	0.26E	0.26
TEPM8	TEPEE POINT RAWS	MT	0.26E	0.26
WBRM8	CORVALLIS 2NE	MT	0.25E	0.25
LVEW4	LOVELL, BIGHORN R	WY	0.25	0.25
SNCK1	SENECA, TURKEY CR	KS	0.24	0.24
SELM8	SEELEY LAKE	MT	0.23E	0.23
BARM7	BARNETT 2E	MO	0.22E	0.22
CRKS2	CROOKS	SD	0.22E	0.22
KRKM7	KIRKSVILLE (KIRX)	MO	0.22	0.22
MESM7	MCCREDIE EXP STA	MO	0.22E	0.22
LSNN8	MINOT 3SE	ND	0.22E	0.22
ANDW4	SOUTH PASS CITY 8WSW	WY	0.22E	0.22
AUXM7	AUXVASSE	MO	0.21E	0.21
FSTM8	FISHTAIL	MT	0.21E	0.21
SLDW4	SOLDIER PARK SNOTEL	WY	0.21E	0.21
YNTW4	YOUNTS PEAK	WY	0.21E	0.21
ABSM8	ABSAROKEE	MT	0.20E	0.20
SQPM8	ALBERTON	MT	0.20	0.20
BSCM8	BASIN CREEK	MT	0.20	0.20
BEAM8	BEAGLE SPRINGS	MT	0.20	0.20
BLWW4	BLACKWATER	WY	0.20	0.20
BBSW4	BLIND BULL SUMMIT	WY	0.20	0.20
CMDM8	CLOVER MEADOW	MT	0.20	0.20
COSW4	COLD SPRINGS	WY	0.20	0.20
COPM8	COPPER BOTTOM	MT	0.20	0.20
DPKW4	DEER PARK	WY	0.20	0.20
DIVM8	DIVIDE	MT	0.20	0.20
DMLW4	DOME LAKE	WY	0.20	0.20
HRKM8	HARKNESS RAWS	MT	0.20E	0.20
LNCM8	LINCOLN 2NE RAWS	MT	0.20E	0.20
LTWW4	LITTLE WARM SPGS SCS	WY	0.20	0.20

LTTW4	LITTLE WARM SPRINGS	WY	0.20E	0.20
LOPW4	LOOMIS PARK	WY	0.20	0.20
MDLI1	MEADOW LAKE	ID	0.20	0.20
MNON8	MINOT EXP STATION	ND	0.20	0.20
MSPM8	MOSS PEAK	MT	0.20	0.20
MTKM8	MOUNT LOCKHART	MT	0.20	0.20
NOIM8	NOISY BASIN	MT	0.20	0.20
PRKW4	PARKER PEAK	WY	0.20	0.20
PHBW4	PHILLIPS BENCH	WY	0.20	0.20
PLCM8	PLACER BASIN	MT	0.20	0.20
ROAC2	ROACH	CO	0.20	0.20
ROCM8	ROCKY BOY	MT	0.20	0.20
SPSW4	SOUTH PASS	WY	0.20	0.20
SOU	SOUTH PASS CITY 2WNW	WY	0.20E	0.20
SUCW4	SUCKER CREEK	WY	0.20	0.20
TION8	TIOGA 1E	ND	0.20E	0.20

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0STATION ID	DESCRIPTION	STATE	06/01	PERIOD SUM
TRPW4	TRIPLE PEAKS	WY	0.20	0.20
WLVW4	WOLVERINE	WY	0.20	0.20
YOUW4	YOUNTS PEAK	WY	0.20	0.20
CYKW4	BIG HORN, CONEY CR	WY	0.19E	0.19
LCRW4	LARSEN CREEK SNOTEL	WY	0.19E	0.19
SNOM8	LEWISTOWN 20SW	MT	0.19E	0.19
RALS2	RAUVILLE 2W	SD	0.19E	0.19
RCHC2	ROACH	CO	0.19E	0.19
SWLM8	SWAN LAKE	MT	0.19E	0.19
BABM8	BABB 4SW	MT	0.18E	0.19
BYDW4	BOYD RIDGE RAWS	WY	0.18E	0.19
JAC	JACKSON HOLE AIRPORT	WY	0.18E	0.19
S69	LINCOLN RANGER STA	MT	0.18E	0.19
MOOW4	MOOSE	WY	0.18E	0.19
MJTW4	MORAN 5SW	WY	0.18E	0.19
MRAW4	MORAN 5WSW	WY	0.18E	0.19
NVZM7	NOVINGER, CHARITON R	MO	0.18E	0.19
WRSM8	WISE RIVER RAWS	MT	0.18E	0.19
EBMM8	BOULDER MINE SNOTEL	MT	0.17E	0.17
DNWW4	DINWOODY	WY	0.17E	0.17
LINM8	LINCOLN RANGER STA	MT	0.17E	0.17
NOVM7	NOVINGER	MO	0.17E	0.17
NYEM8	NYE #2	MT	0.17E	0.17
WREM8	ROSCOE, W ROSEBUD CR	MT	0.17E	0.17
SPBM8	SPOTTED BEAR RAWS	MT	0.17E	0.17
WRVM8	WISE RIVER 3WNW	MT	0.17E	0.17
CHRW4	CHRISTINA LAKE	WY	0.16E	0.16
GPKM8	GATE PARK RAWS	MT	0.16E	0.16
LOVW4	LOVELL	WY	0.16E	0.16
MDDM7	MIDDLETOWN	MO	0.16E	0.16
WPO	PILOT MOUND	MB	0.16E	0.16
THRW4	THOROFARE	WY	0.16E	0.16
WCRM8	WICKED CREEK RAWS	MT	0.16E	0.16
WISM8	WISDOM	MT	0.16E	0.16
MFBW4	BARNUM, POWDER R	WY	0.15	0.16

BGSW4	BIG SANDY OPENING	WY	0.15E	0.16
COSM8	COLUMBUS	MT	0.15E	0.16
3DU	DRUMMOND 2SW	MT	0.15E	0.16
MSSM7	MUSSEL FORK	MO	0.15	0.16
PKCW4	POCKET CREEK SNOTEL	WY	0.15E	0.16
DBYM8	DERBY MOUNTAIN RAWS	MT	0.14E	0.14
WYFM4	DUBOIS 10WNW	WY	0.14E	0.14
TOFW4	DUBOIS 41NNW	WY	0.14E	0.14
FSLM8	FISHTAIL 7W RAWS	MT	0.14E	0.14
FTNM7	FULTON	MO	0.14E	0.14
GLSM7	GLASGOW	MO	0.14E	0.14
GLZM7	GLASGOW, MISSOURI R	MO	0.14	0.14
MSO	MISSOULA SITE 1	MT	0.14	0.14
SULM8	SULA 3ENE	MT	0.14E	0.14
SLBW4	SUNLIGHT BASIN	WY	0.14E	0.14
COU	COLUMBIA	MO	0.13	0.13
COUW4	COULTER CREEK	WY	0.13E	0.13
DRBM8	DARBY	MT	0.13E	0.13

1NWSRFS FORECAST SYSTEM - PROGRAM PPDUTIL (VERSION: ob8.1 - 03/20/07) USER=MBRFC
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0

0STATION ID	DESCRIPTION	STATE	06/01	PERIOD SUM
DUBN1	DUBOIS	NE	0.13E	0.13
HHRW4	HYATTVILLE 6NE	WY	0.13E	0.13
MCLM8	MC LEOD 12SSW	MT	0.13E	0.13
ATAW4	ALTA	WY	0.12E	0.13
MOBN7	ASHLAND 4E	MO	0.12E	0.13
BOI	BOISE WFO	ID	0.12E	0.13
CFHM7	CLIFTON HILL	MO	0.12E	0.13
RASW4	DUBOIS 22SW	WY	0.12E	0.13
DUBW4	DUBOIS, WIND R	WY	0.12	0.13
YEN	ESTEVAN	SK	0.12E	0.13
MOFSA027	FULTON 3SW	MO	0.12E	0.13
HGHM7	HIGH POINT	MO	0.12E	0.13
MSAM8	MISSOULA 2NE	MT	0.12E	0.13
MYSM8	MYSTIC LAKE	MT	0.12E	0.13
WRPM8	ROGERS PASS 9NNE	MT	0.12E	0.13
STTM7	ST THOMAS, OSAGE R	MO	0.12	0.13
BEFM8	AUGUSTA 21WSW	MT	0.11	0.12
NFSM8	AUGUSTA 25NW	MT	0.11E	0.12
MGLM8	BABB 10SW	MT	0.11E	0.12
POCW4	CLARK 20WSW	WY	0.11E	0.12
AGSM8	GIBSON DAM	MT	0.11E	0.12
GDMM8	GIBSON LAKE	MT	0.11	0.12
GNAM8	GLENTANA 4SW	MT	0.11E	0.12
GAPM8	JUDITH GAP	MT	0.11E	0.12
IRK	KIRKSVILLE	MO	0.11	0.12
KAMS2	LAKE KAMPESKA	SD	0.11E	0.12
P69	LOWELL	ID	0.11	0.12
OPMM8	OPHEIM 12SSE	MT	0.11E	0.12
RCH	RED CANYON	WY	0.11E	0.12
VLVN8	VELVA	ND	0.11E	0.12
WARM8	WARRICK 2NW	MT	0.11E	0.12
ABRM8	ALBRO LAKE	MT	0.10	0.11
BADM8	BADGER PASS	MT	0.10	0.11

BRLM8	BARKER LAKES	MT	0.10	0.11
BTLW4	BATTLE MOUNTAIN	WY	0.10	0.11
BLTW4	BEARTOOTH LAKE	WY	0.10	0.11
BLTM8	BEARTOOTH LAKE	MT	0.10	0.11
BSTM8	BIG SKY RESORT	MT	0.10E	0.11
BLKM8	BLACK PINE	MT	0.10	0.11
BLOM8	BLOODY DICK	MT	0.10	0.11
BSDW4	BONE SPRINGS DIVIDE	WY	0.10	0.11
BKLW4	BROOKLYN LAKE	WY	0.10	0.11
BRJW4	BURGESS JUNCTION	WY	0.10	0.11
CLDW4	BURRIS 10SW	WY	0.10E	0.11
DINW4	BURRIS, DINWOODY CR	WY	0.10E	0.11
CPKW4	CLOUD PEAK RESERVOIR	WY	0.10	0.11
RATW4	CODY 12WNW	WY	0.10	0.11
COOI4	COON RAPIDS	IA	0.10	0.11
DDMM8	DEADMAN CREEK	MT	0.10	0.11
DVDW4	DIVIDE PEAK	WY	0.10	0.11
DBOW4	DUBOIS, WIND R	WY	0.10E	0.11
BAGM8	DUPUYER 22SW	MT	0.10E	0.11
DPYM8	DUPUYER CREEK	MT	0.10	0.11

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ELKC2	ELK RIVER	CO	0.10	0.11
EMCM8	EMERY CR SNT	MT	0.10	0.11
ENNM8	ENNIS RAWS	MT	0.10E	0.11
FSHM8	FISHER CREEK	MT	0.10	0.11
FTMM8	FLATTOP MOUNTAIN	MT	0.10	0.11
FTNM8	FLATTOP MTN SNT	MT	0.10E	0.11
GPI	GLACIER PARK AIRPORT	MT	0.10	0.11
GRCW4	GRANITE CREEK	WY	0.10	0.11
GRVW4	GROS VENTRE SUMMIT	WY	0.10	0.11
HLN	HELENA AIRPORT	MT	0.10	0.11
HURS2	HURON, JAMES R	SD	0.10	0.11
INCW4	INDIAN CREEK	WY	0.10	0.11
JWRC2	JOE WRIGHT	CO	0.10	0.11
JNPC2	JONES PASS	CO	0.10	0.11
KLLW4	KELLEY	WY	0.10	0.11
KLNC2	KILN	CO	0.10	0.11
KRWW4	KIRWIN	WY	0.10	0.11
LELC2	LAKE ELDORA	CO	0.10	0.11
LKIC2	LAKE IRENE	CO	0.10	0.11
LVRM8	LAKEVIEW RIDGE	MT	0.10	0.11
LMHM8	LEMHI RIDGE	MT	0.10	0.11
LVGM8	LIVINGSTON 12S	MT	0.10E	0.11
BSKM8	LONE MOUNTAIN	MT	0.10	0.11
LOTC2	LOST DOG	CO	0.10	0.11
LWTM8	LOWER TWIN	MT	0.10	0.11
LUBM8	LUBRECHT FLUME	MT	0.10	0.11
MANM8	MANY GLACIER SNT	MT	0.10	0.11
NEVM8	NEVADA CREEK	MT	0.10E	0.11
NVRM8	NEVADA RIDGE	MT	0.10	0.11
OPDK1	O P #1200 (MARTY LN)	KS	0.10	0.11
OPNM8	OPHEIM 10N	MT	0.10E	0.11

OVNM8	OVANDO DCP	MT	0.10E	0.11
PWDW4	POWDER RIVER PASS	WY	0.10	0.11
RRDM8	RED ROCK RAWS	MT	0.10E	0.11
RPTM8	REEDPOINT	MT	0.10E	0.11
RNHW4	RENO HILL	WY	0.10	0.11
RKPM8	ROCKER PEAK	MT	0.10	0.11
SDMM8	SADDLE MOUNTAIN	MT	0.10	0.11
SCRW4	SHELL CREEK	WY	0.10	0.11
SKAM8	SKALKAHO SUMMIT	MT	0.10	0.11
SFSM8	SOUTH FORK SHIELDS	MT	0.10	0.11
SPRM8	SPUR PARK	MT	0.10	0.11
STTM8	STUART MOUNTAIN	MT	0.10	0.11
TPEM8	TEPEE CREEK	MT	0.10	0.11
THUW4	THUMB DIVIDE	WY	0.10	0.11
TCTM8	TIMBERCREST RAWS	MT	0.10	0.11
TNDW4	TOWNSEND CREEK	WY	0.10E	0.11
TWNW4	TOWNSEND CREEK	WY	0.10	0.11
TRUW4	TROUT CREEK	WY	0.10E	0.11
HAWM8	TROY 34N	MT	0.10	0.11
TOPW4	TWO OCEAN PLATEAU	WY	0.10	0.11
CHUM8	WALDRON	MT	0.10	0.11
WALM8	WALDRON	MT	0.10E	0.11

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WRMM8	WARM SPRINGS	MT	0.10	0.11
JVWM8	WHITEHALL 7SW	MT	0.10E	0.11
BYDM8	BOYD, RED LODGE CR	MT	0.09E	0.10
BRRM8	BRENNER RAWS	MT	0.09E	0.10
BRRW4	BURRIS	WY	0.09E	0.10
SCCS2	CHESTER, SKUNK CR	SD	0.09E	0.10
DERS2	DELL RAPIDS 2SW	SD	0.09E	0.10
SUMM8	EAST GLACIER 11SW	MT	0.09E	0.10
KDKC2	ELDORA 3W AMRAD	CO	0.09E	0.10
ELKW4	ELKHORN RAWS	WY	0.09	0.10
GSNM8	GLEASON RAWS	MT	0.09E	0.10
HRWM8	HELENA 3N RAWS	MT	0.09E	0.10
HVMM8	HELENA 4NE	MT	0.09E	0.10
HWPM8	HELENA WATER PLANT	MT	0.09E	0.10
HLTM8	HOLTER DAM 3ESE	MT	0.09E	0.10
HRHS2	HURON (AMRAD)	SD	0.09E	0.10
ZPC	PINCHER CR	AB	0.09E	0.10
REDM8	RED LODGE 6SSW	MT	0.09E	0.10
SABK1	SABETHA	KS	0.09E	0.10
SRSW4	SANDSTONE	WY	0.09E	0.10
SBCM8	SILVER GATE 2WSW	MT	0.09	0.10
SILM8	SILVER RUN	MT	0.09E	0.10
SPAW4	SOUTH PASS CITY	WY	0.09E	0.10
NLWW4	WASHAKIE, LTL WIND R	WY	0.09E	0.10
WTTS2	WATERTOWN (AMRAD)	SD	0.09E	0.10
WHHM8	WHITEHALL RAWS	MT	0.09E	0.10
WRVW4	WIND RIVER	WY	0.09E	0.10
ZIRC2	ZIRKEL	CO	0.09E	0.10
CCSW4	CASTLE CREEK SNOTEL	WY	0.08E	0.09

UMCM7	COLUMBIA	MO	0.08E	0.09
MOBN11	COLUMBIA 1SSE	MO	0.08E	0.09
COXM7	COLUMBIA HINKSON CR	MO	0.08E	0.09
COLN8	COLUMBUS	ND	0.08E	0.09
CORW4	CORA	WY	0.08E	0.09
NGPC2	COWDREY 6NW	CO	0.08E	0.09
DBOM8	DEARBORN RAWS	MT	0.08	0.09
DVDM8	DIVIDE, BIG HOLE R	MT	0.08E	0.09
GTOM8	GOAT HAUNT MOUNTAIN	MT	0.08E	0.09
HNZM7	HUNTSVILLE, CHARITON	MO	0.08	0.09
HORS2	HURON	SD	0.08E	0.09
IBEM7	IBERIA	MO	0.08E	0.09
LEIW4	LEIGH CREEK RAWS	WY	0.08E	0.09
CEFM8	LIMA 36ENE	MT	0.08E	0.09
LNSM7	LINNEUS, LOCUST CR	MO	0.08	0.09
LSNM8	LITTLE SNOWY RAWS	MT	0.08E	0.09
LRVC2	LONG DRAW RES SNOTEL	CO	0.08E	0.09
0853N8	MAX 8N	ND	0.08E	0.09
PHYM8	NEIHART 6S RAWS	MT	0.08E	0.09
NFCW4	NORTH FRENCH CREEK	WY	0.08E	0.09
PHIM8	PHILIPSBURG 2S	MT	0.08E	0.09
PHGM8	PHILIPSBURG RAWS	MT	0.08E	0.09
PNYM8	PONY	MT	0.08E	0.09
TFRW4	TEN SLEEP 4NE	WY	0.08E	0.09

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TVLS2	TUNERVILLE	SD	0.08E	0.09
VDIM7	VANDIKE FARMS 4NNE	MO	0.08	0.09
VERM7	VERSAILLES 2W	MO	0.08E	0.09
WPRC2	WILLOW PARK	CO	0.08E	0.09
BHRM8	YELLOWTAIL DAM	MT	0.08E	0.09
BZEM8	BOZEMAN STATE UNIV	MT	0.07E	0.08
BURW4	BURGESS JUNCTION	WY	0.07E	0.08
BUJW4	BURGESS RAWS	WY	0.07	0.08
CRDW4	CRANDALL CREEK	WY	0.07E	0.08
DERM8	DEER LODGE 3W	MT	0.07E	0.08
DVL	DEVILS LAKE AIRPORT	ND	0.07	0.08
GAAM8	GALENA RAWS	MT	0.07E	0.08
GIBM8	GIBBONS PASS	MT	0.07E	0.08
GDYC2	GLENDEVEY	CO	0.07E	0.08
ILIM8	ILIAD	MT	0.07E	0.08
KLYM8	KELLY RAWS	MT	0.07E	0.08
MOFSA041	KEYTESVILLE	MO	0.07E	0.08
LKVM8	LAKEVIEW	MT	0.07E	0.08
LWSM8	LEWISTOWN 10S	MT	0.07E	0.08
LWMM8	LEWISTOWN 11ESE	MT	0.07E	0.08
NFLM7	NEW FLORENCE #2	MO	0.07E	0.08
OSGM7	OSAGE BEACH 2SW	MO	0.07E	0.08
PINW4	PINEDALE 1NE	WY	0.07E	0.08
RPJM8	RAPELJE 4S	MT	0.07E	0.08
SPCW4	SOUTH PASS CITY 3NNE	WY	0.07E	0.08
WPRW4	WAPITI 1W	WY	0.07E	0.08
BHMM8	WYOLA 25WSW	MT	0.07	0.08

BAGW4	BAGGS	WY	0.06E	0.06
BKRW4	BECHLER RANGER STA	WY	0.06E	0.06
BXCW4	BOXELDER, BOXELDER C	WY	0.06E	0.06
BWSM8	BOZEMAN 4W AGRIMET	MT	0.06E	0.06
BKNM8	BROCKTON 20S	MT	0.06	0.06
CAVS2	CAVOUR 10S	SD	0.06E	0.06
SFJM8	CHECKERBOARD 12NE	MT	0.06	0.06
MOBN19	COLUMBIA 4WSW	MO	0.06E	0.06
CRBI1	CRAB CREEK	ID	0.06E	0.06
ENSM8	ENNIS	MT	0.06E	0.06
GRGM7	GRAND GLAISE	MO	0.06E	0.06
GLFM8	GULF RAWS	MT	0.06E	0.06
HMTW4	HEART MOUNTAIN	WY	0.06E	0.06
JACM8	JACKSON	MT	0.06E	0.06
KAIM7	KAISER 7E	MO	0.06E	0.06
LKSM7	LAKESIDE	MO	0.06E	0.06
LAEM7	LAURIE 5NE	MO	0.06E	0.06
LDRI1	LEADORE	ID	0.06E	0.06
MRFM7	MARSHFIELD	MO	0.06	0.06
MARM7	MARSHFIELD 1N	MO	0.06E	0.06
MAXN8	MAX	ND	0.06E	0.06
OPCK1	O P #1100 (CTY HALL)	KS	0.06E	0.06
KSJO8	OVERLAND PARK 4NNE	KS	0.06E	0.06
TNBM8	TWIN BRIDGES	MT	0.06E	0.06
WBSS2	WATERTOWN, BIG SIOUX	SD	0.06	0.06
BDLM8	WHITEHALL 4SW RAWS	MT	0.06E	0.06

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WEFN8	WILLISTON EXP FARM	ND	0.06E	0.06
WILM8	WILSALL 8ENE	MT	0.06E	0.06
YLWM8	YELLOW MULE RAWS	MT	0.06E	0.06
ALBI4	ALBIA 3NNE	IA	0.05	0.05
BFRN8	BALFOUR 3SW	ND	0.05E	0.05
BGSM8	BIG SKY 2WNW	MT	0.05E	0.05
GSWM8	BIG SKY 3S	MT	0.05E	0.05
BRKM7	BROOKFIELD	MO	0.05	0.05
BEKM7	BROOKFIELD	MO	0.05E	0.05
BRWM7	BROWNING, LOCUST CR	MO	0.05E	0.05
CYNM8	CANYON FERRY DAM	MT	0.05E	0.05
CARM8	CARDWELL	MT	0.05E	0.05
CSMM8	CASCADE 5S	MT	0.05E	0.05
CBYN8	CROSBY	ND	0.05E	0.05
GSNN8	GARRISON	ND	0.05E	0.05
N60	GARRISON 1W	ND	0.05	0.05
GBNM8	GIBSON 2NE	MT	0.05E	0.05
CFRM8	HELENA 15E	MT	0.05E	0.05
HGBM7	HIGBEE 4S	MO	0.05E	0.05
KRYM7	KEARNEY 2E	MO	0.05E	0.05
KRNM7	KEARNEY 3E	MO	0.05	0.05
LANW4	LANDER, POPO AGIE R	WY	0.05E	0.05
MVNS2	MARVIN 9SW	SD	0.05E	0.05
MQM	MONIDA	MT	0.05E	0.05
NIAM7	NIANGUA	MO	0.05E	0.05

PNDW4	PINEDALE	WY	0.05E	0.05
RXE	REXBURG AIRPORT	ID	0.05E	0.05
SLMN1	SALEM 5SW	NE	0.05E	0.05
SVRM8	SILVER STAR	MT	0.05E	0.05
SBLW4	SODA BUTTE CREEK	WY	0.05E	0.05
DUSM8	SWIFT DAM	MT	0.05E	0.05
VACM8	VIRGINIA CITY	MT	0.05E	0.05
AXTM8	VIRGINIA CITY 15SE	MT	0.05E	0.05
WRRM7	WARRENSBURG 4NW	MO	0.05	0.05
WRTS2	WATERTOWN 1W	SD	0.05E	0.05
WTDN8	WATFORD CITY	ND	0.05	0.05
WFCN8	WATFORD CITY	ND	0.05E	0.05
WCYN8	WATFORD CITY 1S	ND	0.05E	0.05
ISN	WILLISTON INTL APT	ND	0.05	0.05
LMCN8	WILLISTON, LTL MUDDY	ND	0.05E	0.05
WLTN8	WILLISTON,MISSOURI R	ND	0.05E	0.05
ANAM8	ANACONDA	MT	0.04E	0.04
BCRW4	BATES CREEK	WY	0.04E	0.04
BNFM8	BRENNER GDDS	MT	0.04E	0.04
BLBW4	BUFFALO BILL DAM	WY	0.04E	0.04
CDTM7	CAMDENTON 2NW	MO	0.04E	0.04
CMNM8	CAMERON	MT	0.04E	0.04
CASM8	CASCADE	MT	0.04E	0.04
CSEM8	CASCADE 20SSE	MT	0.04E	0.04
CINW4	CINNABAR PARK	WY	0.04E	0.04
CLAW4	CLARK 3NE	WY	0.04E	0.04
CULM8	CULBERTSON	MT	0.04E	0.04
EPPN8	EPPING	ND	0.04E	0.04

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BHCM7	EXCELLO 3WSW	MO	0.04E	0.04
GBSM8	GIBSON 4SW	MT	0.04E	0.04
GRSM7	GRAVOIS MILLS	MO	0.04E	0.04
3HT	HARLOWTON	MT	0.04E	0.04
HLWM8	HARLOWTON 1SW	MT	0.04E	0.04
UMHM8	HARLOWTON 5W	MT	0.04	0.04
HORC2	HOHNHOLZ RANCH	CO	0.04E	0.04
KNEN8	KEENE 3S	ND	0.04E	0.04
KLLN8	KILLDEER	ND	0.04	0.04
LDOM7	LAREDO, MEDICINE CR	MO	0.04	0.04
LARM8	LAURIN 2NE	MT	0.04E	0.04
LBRM7	LONG BRANCH RES	MO	0.04	0.04
MDLM8	MCLEOD	MT	0.04E	0.04
NGTC2	NORTHGATE, N PLATTE	CO	0.04E	0.04
OPEK1	O P #1300 (CORP WDS)	KS	0.04E	0.04
OLFW4	OLD FAITHFUL	WY	0.04E	0.04
OTM	OTTUMWA	IA	0.04E	0.04
POWW4	POWELL RADIO	WY	0.04E	0.04
RIMM8	RIMINI 4NE	MT	0.04E	0.04
ROBM8	ROBERTS 1N	MT	0.04E	0.04
SPPM8	SAPPINGTON HWY BR	MT	0.04E	0.04
SLVM8	SILVER LAKE	MT	0.04E	0.04
TABM8	TABLE MOUNTAIN	MT	0.04E	0.04

WYWH1	TEN SLEEP 5NNW	WY	0.04E	0.04
TFKM8	THREE FORKS 3NW GDDS	MT	0.04	0.04
HUTM8	UTICA 11WSW	MT	0.04E	0.04
VGLS2	VIRGIL	SD	0.04E	0.04
WAPW4	WAPITI 1NE	WY	0.04E	0.04
NFSW4	WAPITI, NF SHOSHONE	WY	0.04E	0.04
WACN8	WATFORD CITY 12E	ND	0.04E	0.04
WATN8	WATFORD CITY 14S	ND	0.04E	0.04
WSRM8	WHITE SULPHUR SPRNGS	MT	0.04E	0.04
WLDN8	WILDROSE 3NW	ND	0.04E	0.04
MOBN25	WOOLDRIDGE 3ENE	MO	0.04E	0.04
ALEN8	ALEXANDER 4NNW	ND	0.03E	0.04
PISM8	AUGUSTA 20NNW	MT	0.03E	0.04
AUSM8	AUSTIN 1W	MT	0.03E	0.04
BAYI4	BAYARD 6SE	IA	0.03E	0.04
BEAK1	BEATTIE 2NNW	KS	0.03E	0.04
BLMI4	BLOOMFIELD 1WNW	IA	0.03	0.04
BZLM8	BOZEMAN 5W	MT	0.03E	0.04
BZMM8	BOZEMAN 6W EXP FARM	MT	0.03E	0.04
BRTM8	BRITTON SPRINGS	MT	0.03E	0.04
BBRW4	BUFFALO BILL ABV	WY	0.03E	0.04
CDYW4	BUFFALO BILL DAM	WY	0.03E	0.04
BWXW4	BUFFALO BILL RES	WY	0.03E	0.04
BURN1	BURCHARD	NE	0.03E	0.04
BTEN8	BUTTE 5SE	ND	0.03E	0.04
BTTM8	BUTTE 8S	MT	0.03E	0.04
BLFM8	BYNUM 7NW	MT	0.03E	0.04
CSHM8	CASHE CREEK	MT	0.03E	0.04
CVDM8	CHINOOK 21SE	MT	0.03E	0.04
CHUM7	CHULA, MUDDY CR	MO	0.03E	0.04

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CUDM8	CLEVELAND 5ENE	MT	0.03E	0.04
CLBM8	CULBERTSON 3SE	MT	0.03E	0.04
DEVW4	DEAVER	WY	0.03E	0.04
DLMM8	DELMOE RAWS	MT	0.03E	0.04
DBSI1	DUBOIS EXP STATION	ID	0.03E	0.04
DNCN8	DUNN CENTER 1E	ND	0.03E	0.04
EGHM8	EAGLEHEAD	MT	0.03E	0.04
ELMM8	ENNIS LAKE	MT	0.03E	0.04
FAYM7	FAYETTE 7ESE	MO	0.03E	0.04
FYTM7	FAYETTE, MONITEAU CR	MO	0.03E	0.04
FRLM7	FORDLAND 6NW	MO	0.03E	0.04
FTAN8	FORTUNA 1W	ND	0.03E	0.04
GARN8	GARRISON DAM	ND	0.03E	0.04
CSFC2	GOULD 4SE	CO	0.03E	0.04
GRBN8	GRASSY BUTTE 2ENE	ND	0.03E	0.04
GREN8	GRENORA	ND	0.03E	0.04
GROM7	GROVESPRING 4W	MO	0.03E	0.04
HLTM7	HOLT 3E	MO	0.03E	0.04
IOW	IOWA CITY AIRPORT	IA	0.03	0.04
IRQS2	IROQUOIS	SD	0.03E	0.04
KILN8	KILLDEER 8NW	ND	0.03E	0.04

LPRW4	LAPRELE CREEK	WY	0.03E	0.04
LRRM8	LIMA RESERVOIR	MT	0.03E	0.04
LIVM8	LIVINGSTON 5S	MT	0.03E	0.04
MSDK1	LOONEY, MIKE	KS	0.03E	0.04
MADM8	MADISON DAM BLO	MT	0.03E	0.04
MLKM8	MEDICINE LAKE RAWS	MT	0.03E	0.04
MVEM8	MELVILLE 4W	MT	0.03E	0.04
MTNM8	MOULTON RESERVOIR	MT	0.03E	0.04
COBO34	NEDERLAND 1WNW	CO	0.03E	0.04
FOFW4	OLD FAITHFUL	WY	0.03E	0.04
OFAW4	OLD FAITHFUL	WY	0.03E	0.04
OPNK1	OVERLAND PARK	KS	0.03E	0.04
KSJO15	OVERLAND PARK 4NNW	KS	0.03E	0.04
BRSW4	PINEDALE 14SE	WY	0.03E	0.04
RELM8	RED LODGE	MT	0.03E	0.04
RCHM8	RICHEY 10SW	MT	0.03E	0.04
RIVN8	RIVERDALE	ND	0.03E	0.04
SSKW4	RIVERSIDE, SPRING CR	WY	0.03E	0.04
MBLW4	SARATOGA 16SE	WY	0.03E	0.04
SBCW4	SOUTH BRUSH CREEK	WY	0.03E	0.04
TMPM8	TAMPICO, MILK R	MT	0.03E	0.04
VNAM7	VIENNA 2WNW	MO	0.03E	0.04
WLDC2	WALDEN	CO	0.03E	0.04
WADC2	WALDEN	CO	0.03E	0.04
WWKN8	WARWICK	ND	0.03E	0.04
BLCW4	WASHAKIE 19NW	WY	0.03E	0.04
SMHM8	WHITE SULPHUR 25NNW	MT	0.03E	0.04
PRMM8	WILD HORSE RAWS	MT	0.03E	0.04
WLDM8	WILDROSE 3NW	MT	0.03E	0.04
WINM8	WINIFRED	MT	0.03E	0.04
ALSM8	ALDER 17S	MT	0.02E	0.02
ADRM8	ALDER 19S	MT	0.02E	0.02

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0STATION ID	DESCRIPTION	STATE	06/01	PERIOD SUM
BGDW4	BIG GOOSE CREEK ABV	WY	0.02E	0.02
BMFM8	BLOOMFIELD 5NNE	MT	0.02E	0.02
BLUM8	BLUFF CREEK RAWS	MT	0.02	0.02
BRIM8	BRIDGER 5SE	MT	0.02E	0.02
SBFM8	BRIDGER 9SE	MT	0.02	0.02
BULW4	BULL LAKE OUTFLOW	WY	0.02E	0.02
BYI	BURLEY AIRPORT	ID	0.02E	0.02
CSPW4	CASPER MOUNTAIN	WY	0.02E	0.02
CMRW4	CASPER MOUNTAIN	WY	0.02E	0.02
CID	CEDAR RAPIDS AIRPORT	IA	0.02	0.02
CLKC2	CLARK	CO	0.02E	0.02
CLKM8	CLARK CANYON DAM	MT	0.02E	0.02
CDAW4	CODY 25NW	WY	0.02E	0.02
CKCM8	COOKE CITY 2W	MT	0.02E	0.02
CSBN8	CROSBY 30W RAWS	ND	0.02E	0.02
DOWM7	DOWNING	MO	0.02	0.02
DKEN8	DRAKE 8NE	ND	0.02E	0.02
EGLW4	EAGLE	WY	0.02E	0.02
EGLM8	EAST GLACIER	MT	0.02E	0.02

EONK1	EASTON	KS	0.02	0.02
ESTK1	EASTON, STRANGER CR	KS	0.02E	0.02
WHSM8	ELK PEAK SNOTEL	MT	0.02E	0.02
EXSM7	EXCELSIOR SPRINGS 4S	MO	0.02	0.02
FGVM7	FAIR GROVE 3NE	MO	0.02E	0.02
FAGM7	FAIR GROVE 5SW	MO	0.02E	0.02
FPKM8	FORT PECK DAM	MT	0.02E	0.02
FRAC2	FRASER 6W	CO	0.02E	0.02
GLWM8	GLASGOW 3SE, MILK R	MT	0.02	0.02
GGWM8	GLASGOW WFO	MT	0.02	0.02
GLNW4	GLENROCK, N PLATTE R	WY	0.02E	0.02
RDR	GRAND FORKS AFB	ND	0.02	0.02
GRNM8	GRANT 5SE	MT	0.02E	0.02
GSSM8	GRASS RANGE	MT	0.02E	0.02
FWFM8	GRASS RANGE 19SSE	MT	0.02E	0.02
0063N8	GRASSY BUTTE 9SE	ND	0.02E	0.02
GVSM7	GROVESPRING 3N	MO	0.02E	0.02
GOVM7	GROVESPRING 5S	MO	0.02E	0.02
HLIN8	HALLIDAY	ND	0.02E	0.02
HOBM8	HOBSON	MT	0.02E	0.02
HRLC2	HOURGLASS RES SNOTEL	CO	0.02E	0.02
HUDW4	HUDSON	WY	0.02E	0.02
IRHW4	IRISH ROCK	WY	0.02E	0.02
JTWN8	JAMESTOWN HOSPITAL	ND	0.02	0.02
JMSN8	JAMESTOWN, JAMES R	ND	0.02E	0.02
JCMM7	JEFFERSON CITY	MO	0.02E	0.02
MTNW4	KINNEAR 9WNW	WY	0.02E	0.02
LMRW4	LAMAR RANGER STATION	WY	0.02E	0.02
LEAK1	LEAWOOD	KS	0.02E	0.02
LCMM8	LEWISTOWN	MT	0.02E	0.02
LEWM8	LEWISTOWN 2SW	MT	0.02E	0.02
LWT	LEWISTOWN AIRPORT	MT	0.02	0.02
LBEM7	LIBERTY 3NW	MO	0.02E	0.02
LSTW4	LOST CREEK	WY	0.02E	0.02

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0STATION ID	DESCRIPTION	STATE	06/01	PERIOD SUM
MDKN8	MADDOCK	ND	0.02E	0.02
MRMM8	MARTINSDALE 2E	MT	0.02E	0.02
MRTM8	MARTINSDALE 3NNW	MT	0.02E	0.02
MCBM7	MCBAINE, MISSOURI R	MO	0.02E	0.02
MCGN8	MCGREGOR	ND	0.02E	0.02
MCVN8	MCVILLE	ND	0.02E	0.02
MLRM8	MELROSE 7S	MT	0.02E	0.02
MLNM7	MILAN	MO	0.02E	0.02
MGZM8	MILLEGAN 14SE	MT	0.02E	0.02
MOFSA175	MOBERLY 3N	MO	0.02E	0.02
BOUM8	MONTANA DEV CENTER	MT	0.02E	0.02
NASM8	NASHUA #2	MT	0.02E	0.02
NSHM8	NASHUA, MILK R	MT	0.02E	0.02
NHRM8	NEIHART 7NW	MT	0.02E	0.02
NHTM8	NEIHART 8NNW	MT	0.02E	0.02
OPFK1	O P #1400 (WATFD PL)	KS	0.02E	0.02
HAFW4	PINEDALE	WY	0.02E	0.02

JAMN8	PIPESTEM RES	ND	0.02	0.02
PLSM8	POLARIS 4N	MT	0.02E	0.02
POPM8	POPLAR	MT	0.02E	0.02
PFSW4	POWELL FIELD STATION	WY	0.02E	0.02
RAYM8	RAYMOND BORDER STA	MT	0.02E	0.02
RWYM7	RIDGEWAY	MO	0.02	0.02
RWCI4	ROCKWELL CITY #2	IA	0.02E	0.02
SEYM7	SEYMOUR 1N	MO	0.02E	0.02
SHWK1	SHAWNEE 2S	KS	0.02E	0.02
SFKW4	SOUTH FORK	WY	0.02E	0.02
SPDM8	SPRINGDALE	MT	0.02E	0.02
STNM8	STANFORD	MT	0.02E	0.02
TFAW4	TOWER FALLS STATION	WY	0.02E	0.02
TURM8	TURNER	MT	0.02E	0.02
WATS2	WATERTOWN	SD	0.02E	0.02
WBWS2	WATERTOWN (BROADWAY)	SD	0.02	0.02
WSBM8	WESTBY	MT	0.02	0.02
YWG	WINNEPEG	MB	0.02E	0.02
ZRTM8	ZORTMAN	MT	0.02E	0.02
ALDM8	ZORTMAN MINE RAWS	MT	0.02	0.02
AXN	ALEXANDRIA	MN	0.01	0.01
ALPS2	ALPENA, SAND CR	SD	0.01E	0.01
AMW	AMES AIRPORT	IA	0.01	0.01
ARWN8	ARROWWOOD LAKE	ND	0.01E	0.01
CRDK1	AUGULIS, RICH	KS	0.01E	0.01
BROM8	AUGUSTA 12ENE	MT	0.01E	0.01
BOCM8	AUGUSTA 7NE	MT	0.01E	0.01
ASTM8	AUGUSTA, ELK CR	MT	0.01E	0.01
AUGM8	AUGUSTA, ELK CR	MT	0.01E	0.01
COWW4	BAGGS 21NNE	WY	0.01E	0.01
CACM8	BAKER 12NE	MT	0.01	0.01
BDE	BAUDETTE AIRPORT	MN	0.01E	0.01
BAYM8	BAYLOR	MT	0.01E	0.01
BCHN8	BEACH 9SE	ND	0.01E	0.01
BEYM7	BETHANY, E FK BIG CR	MO	0.01	0.01
BUAN8	BEULAH 2NW	ND	0.01E	0.01

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BGTM8	BIG TIMBER	MT	0.01E	0.01
BTMM8	BIG TIMBER 1E	MT	0.01E	0.01
BLYW4	BILLY CREEK	WY	0.01	0.01
BIS	BISMARCK AIRPORT	ND	0.01	0.01
HCKN8	BISMARCK, HAY CREEK	ND	0.01E	0.01
BOCM7	BOLCKOW, 102 RIVER	MO	0.01	0.01
BRAS2	BRANDON	SD	0.01E	0.01
0885N8	BREMEN 4NW	ND	0.01E	0.01
BDGM8	BRIDGER 2N	MT	0.01E	0.01
BTNM8	BROCKTON 17N	MT	0.01E	0.01
MOCM2	BRUMLEY 6SW	MO	0.01E	0.01
0787N8	BUCHANAN 2S	ND	0.01E	0.01
BTKM8	BURNT CREEK RAWS	MT	0.01E	0.01
BTM	BUTTE FAA AIRPORT	MT	0.01	0.01
CNSM7	CAINSVILLE	MO	0.01	0.01

CENW4	CENTENNIAL 1NE	WY	0.01E	0.01
CCYC2	CENTRAL CITY	CO	0.01E	0.01
COUM8	CHOTEAU	MT	0.01E	0.01
CIRM8	CIRCLE	MT	0.01E	0.01
CLFM7	CLIFTON CITY	MO	0.01E	0.01
CYDM8	CLYDE PARK 1W	MT	0.01E	0.01
COD	CODY	WY	0.01E	0.01
CODW4	CODY	WY	0.01E	0.01
COOW4	CODY 5SE	WY	0.01E	0.01
COCM7	COLE CAMP 9SE	MO	0.01E	0.01
CMBI4	COLUMBIA	IA	0.01E	0.01
CRDM8	CONRAD	MT	0.01E	0.01
SO1	CONRAD	MT	0.01E	0.01
COUN8	COURTENAY 1NW	ND	0.01E	0.01
DESK1	DE SOTO	KS	0.01E	0.01
DTON1	DENTON 2N	NE	0.01E	0.01
DSM	DES MOINES	IA	0.01	0.01
DMX	DES MOINES WFO	IA	0.01E	0.01
DSOK1	DESOTO, KANSAS R	KS	0.01E	0.01
KCDK1	DESOTO, KILL CR	KS	0.01	0.01
DRHN8	DICKINSON RANCH HQ	ND	0.01E	0.01
EGLC2	EAGLE 13W	CO	0.01E	0.01
EDGK1	EDGERTON 2NE	KS	0.01	0.01
EDMN8	EDMUNDS ARROWWOOD	ND	0.01E	0.01
FAIN8	FAIRFIELD	ND	0.01E	0.01
FLLN1	FALLS CITY 2NE	NE	0.01E	0.01
FNB	FALLS CITY 2NE	NE	0.01E	0.01
FWWM8	FORKS 4NNE	MT	0.01E	0.01
FOSI4	FOSTORIA	IA	0.01E	0.01
FRUC2	FRASER 10SE	CO	0.01E	0.01
FRDM8	FRENCHMAN DAM	MT	0.01E	0.01
GTNM8	GALLATIN GATEWAY 10S	MT	0.01E	0.01
GSCM7	GASCONADE,MISSOURI R	MO	0.01E	0.01
GLEM8	GLEN 2E	MT	0.01E	0.01
GDV	GLENDIVE	MT	0.01E	0.01
GNDM8	GLENDIVE	MT	0.01E	0.01
GLNM8	GLENDIVE,YELLOWSTONE	MT	0.01	0.01
GTFM8	GREAT FALLS 16TH ST	MT	0.01E	0.01

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GTF	GREAT FALLS AIRPORT	MT	0.01	0.01
HFDN8	HANNAFORD	ND	0.01E	0.01
HARM7	HARTVILLE 7NW	MO	0.01E	0.01
HRTM8	HEART BUTTE	MT	0.01	0.01
HTBM8	HEART BUTTE 1NW	MT	0.01E	0.01
HBDM8	HEBGEN DAM	MT	0.01E	0.01
HGRM8	HILGER	MT	0.01E	0.01
INSM8	HINSDALE 2E	MT	0.01E	0.01
HINM8	HINSDALE 4SW	MT	0.01E	0.01
HOUC2	HOURGLASS RESERVOIR	CO	0.01E	0.01
HOYM8	HOYT 3SW	MT	0.01E	0.01
RCKM7	INDEPENDENCE,ROCK CR	MO	0.01E	0.01
JFFM7	JEFFERSON CITY	MO	0.01E	0.01

JEF	JEFFERSON CITY	MO	0.01	0.01
JELW4	JELM 2S	WY	0.01E	0.01
JRMM7	JEROME, GASCONADE R	MO	0.01E	0.01
KDAS2	KADOKA	SD	0.01E	0.01
KDKS2	KADOKA 6S, WHITE R	SD	0.01	0.01
KSYM7	KANSAS CITY 40 HWY	MO	0.01E	0.01
KBPM7	KANSAS CTY BLUE PKWY	MO	0.01E	0.01
KWAM7	KANSAS CTY WILSON AV	MO	0.01E	0.01
KNXM7	KNOXVILLE	MO	0.01E	0.01
KZBS2	KRANZBURG	SD	0.01E	0.01
LNFW4	L NORTH FORK	WY	0.01E	0.01
LFRM8	LAKE FRANCES RES	MT	0.01E	0.01
LDRW4	LANDER 3W	WY	0.01E	0.01
MCDM8	LANDUSKY 16SE RAWS	MT	0.01E	0.01
LRBI4	LARRABEE	IA	0.01E	0.01
RBYM8	LAURIN 2SW	MT	0.01E	0.01
LWC	LAWRENCE	KS	0.01	0.01
LRCK1	LAWRENCE	KS	0.01E	0.01
LMCN1	LINCOLN 4WSW	NE	0.01	0.01
LNLN1	LINCOLN FIRE STA 13	NE	0.01E	0.01
LHBN1	LINCOLN, HAINES BR	NE	0.01E	0.01
LDSM8	LINDSAY	MT	0.01E	0.01
LTHN8	LITCHVILLE 2NW	ND	0.01E	0.01
LBHM8	LITTLE BIG HORN RAWS	MT	0.01E	0.01
MOME1	MADISON	MO	0.01E	0.01
MADM7	MADISON	MO	0.01E	0.01
MTAM8	MALTA 35S	MT	0.01E	0.01
MANN8	MANDAN, MISSOURI R	ND	0.01E	0.01
MNGN8	MANNING, KNIFE R	ND	0.01	0.01
MARS2	MARION	SD	0.01E	0.01
MRMN8	MARMARTH	ND	0.01E	0.01
MCW	MASON CITY AIRPORT	IA	0.01	0.01
MDCM8	MEDICINE LAKE 3SE	MT	0.01E	0.01
MNDM7	MENDON, HICKORY BR	MO	0.01E	0.01
MNKN8	MENOKEN 2WNW	ND	0.01E	0.01
MOCM8	MOCCASIN 2W	MT	0.01E	0.01
MCWM8	MOCCASIN 2W AGRIMET	MT	0.01E	0.01
GRLM8	MORONY DAM	MT	0.01E	0.01
FPMM8	NASHUA, MISSOURI R	MT	0.01E	0.01
OPGK1	O P #1600 (HAWTH VY)	KS	0.01E	0.01

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OPBK1	O P #1700 (JCCC)	KS	0.01E	0.01
ODSM7	ODESSA 4SE	MO	0.01E	0.01
MOLF1	ODESSA 6SSE	MO	0.01E	0.01
OLDW4	OLD BATTLE	WY	0.01E	0.01
OSKK1	OSKALOOSA 4NE	KS	0.01E	0.01
OTTM7	OTTERVILLE, LAMINE R	MO	0.01	0.01
OPSK1	OVERLAND PARK	KS	0.01E	0.01
PANI4	PANORA	IA	0.01E	0.01
PKD	PARK RAPIDS AIRPORT	MN	0.01E	0.01
PKRS2	PARKER, WEST FORK	SD	0.01	0.01
PKLC2	PICKLE GULCH RAWS	CO	0.01E	0.01

PNHM8	PINE HILL RAWS	MT	0.01E	0.01
PLTM7	PLATTSBURG	MO	0.01E	0.01
LPPM7	PLATTSBURG 2E	MO	0.01E	0.01
PTYM8	PLENTYWOOD	MT	0.01E	0.01
PTWM8	PLENTYWOOD 1NE	MT	0.01E	0.01
POLM7	POLO	MO	0.01E	0.01
PAGM8	POPLAR 2WSW	MT	0.01E	0.01
POGM8	PORT OF MORGAN	MT	0.01E	0.01
PRYM8	PRYOR	MT	0.01E	0.01
UIN	QUINCY	IL	0.01	0.01
RNDC2	RAND	CO	0.01E	0.01
WICC2	RAND 7SW RAWS	CO	0.01	0.01
RANC2	RAND AMRAD	CO	0.01E	0.01
RADI4	RATHBUN DAM	IA	0.01	0.01
RAFM8	RAYNESFORD 2NNW	MT	0.01E	0.01
RIFM7	RICH FOUNTAIN	MO	0.01E	0.01
ERVW4	RIVERSIDE	WY	0.01E	0.01
ALRM8	RUBY DAM	MT	0.01E	0.01
SAOM8	SACO 1NNW	MT	0.01E	0.01
SACM8	SACO 7NE, MILK R	MT	0.01	0.01
SAVM8	SAVAGE	MT	0.01E	0.01
SGOM8	SHENANGO RAWS	MT	0.01	0.01
SHYN8	SHEYENNE	ND	0.01E	0.01
SMMM8	SIMMS 1NE	MT	0.01E	0.01
SSRM8	SIMMS, SUN R	MT	0.01E	0.01
SFLS2	SIOUX FALLS 38A	SD	0.01E	0.01
SMHM7	SMITHVILLE	MO	0.01E	0.01
SLKM7	SMITHVILLE DAM	MO	0.01E	0.01
LSSI4	SPENCER, LTL SIOUX R	IA	0.01	0.01
SACM7	SPRINGFIELD, DRY SAC	MO	0.01E	0.01
0517N8	ST ANTHONY 7NE	ND	0.01E	0.01
SMIM8	ST MARIE	MT	0.01E	0.01
KSDM7	STADIUM DR, BLUE R	MO	0.01	0.01
ORPK1	STANLEY	KS	0.01E	0.01
STAK1	STANLEY 3S DCP	KS	0.01	0.01
SNZM7	SUMNER 2SW, GRAND R	MO	0.01E	0.01
SMNM7	SUMNER 3SW	MO	0.01E	0.01
SNRM8	SUN RIVER 4S	MT	0.01E	0.01
TQE	TEKAMAH	NE	0.01	0.01
GURMB	TONGANOXIE 3NE	KS	0.01E	0.01
TONK1	TONGANOXIE 5SE	KS	0.01E	0.01
TWRW4	TOWER FALLS	WY	0.01E	0.01

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TRIM8	TRIDENT	MT	0.01E	0.01
TULN8	TURTLE LAKE	ND	0.01E	0.01
TURN8	TURTLE LAKE 4N	ND	0.01E	0.01
TWF	TWIN FALLS AIRPORT	ID	0.01E	0.01
UNDN8	UNDERWOOD	ND	0.01E	0.01
VLRM8	VALIER	MT	0.01E	0.01
DUPM8	VALIER, DUPUYER CR	MT	0.01E	0.01
VLRW4	VALLEY 9NNE	WY	0.01E	0.01
VALN8	VALLEY CITY 3NNW	ND	0.01E	0.01

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 VAUM8     VAUGHN 3SE, SUN R      MT         0.01E      0.01
 VIDM8     VIDA 6NE               MT         0.01E      0.01
 VIRS2     VIRGIL (AMRAD)         SD         0.01E      0.01
 COLR672   VIRGINIA DALE 7SSW     CO         0.01E      0.01
 BSWS2     WATERTOWN, BIG SIOUX   SD         0.01E      0.01
 FSTM7     WENTZVILLE 3NW         MO         0.01E      0.01
 WGLM8     WEST GLACIER 1N        MT         0.01       0.01
 WGSM8     WHITE SULPHUR SPRNGS   MT         0.01E      0.01
 WSSM8     WHITE SULPHUR SPRNGS   MT         0.01E      0.01
 WTRM8     WHITEWATER             MT         0.01E      0.01
 FWGC2     WINTER PARK 4SSE       CO         0.01E      0.01
 DYIM8     ZORTMAN 10SW           MT         0.01E      0.01
 >>>>>>>> STOP
0**************************************************************************************************
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0               CPU   TIME USED =    0 MINUTES,  0 SECONDS
0               CLOCK TIME USED =    0 MINUTES,  0 SECONDS
0**************************************************************************************************
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[redacted] NWO

From: Farhat, Jody S NWD02
Sent: Wednesday, June 01, 2011 9:54 AM
To: DLL-CENWD-PDR; [redacted] NWO
Subject: FW: Garrison Spillway Gate Opening (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

FYSA

-----Original Message-----
From: [redacted] NWO
Sent: Wednesday, June 01, 2011 9:41 AM
To: Schenk, Kathryn M NWO
Cc: Blechinger, Erik T NWO; Wingert, Kevin M NWO; [redacted] NWO; [redacted] NWO; [redacted] NWO; [redacted] NWO; Ruch, Robert J COL NWO; [redacted] NWO; Farhat, Jody S NWD02; [redacted] NWD02; Oldham, Margaret NWO; Johnston, Paul T HQ@NWO; [redacted] NWO
Subject: Garrison Spillway Gate Opening (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

Katie,

Just talked with Kevin Wingert concerning the media event at Garrison. Glad to report that everything is going well. They currently have 7 center gates open to the 1 foot mark. The project had previously taken out the culverts in the road below the spillway so the flow is currently going through the road and down the existing channel, no backing up of the water along the road has occurred to date. It is expected that an additional 7 gates will be opened at 2000 this evening.

Traffic and attendance has been manageable, with [redacted] and her team doing an excellent job. There have been about ten media outlets involved so far with TV, radio and print being represented. Kevin told me that Dale Evenson did an excellent job on camera, explaining the operation of the dam and gates. It appears to be getting decent coverage. [redacted] is continuing to do phone interviews as they come in.

Just thought I would let you know an initial report. Again hats off to [redacted] and team for an excellent start to historic day one! Will let you know if anything additional comes up.

Thanks,

[redacted]

Classification: UNCLASSIFIED
Caveats: NONE

Classification: UNCLASSIFIED
Caveats: NONE

[redacted] NWO

From: [redacted] NWO
Sent: Wednesday, June 01, 2011 9:44 AM
To: [redacted] NWO; [redacted] NWO; Farhat, Jody S NWD02
Cc: [redacted] NWO; [redacted] NWO; [redacted] NWO; [redacted] NWO
Subject: RE: Question re: drawing down Lake Sharp (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

[redacted]

Based on our hydraulic model for the Big Bend to Oahe reach, dropping Lake Sharpe 5 feet below present levels would only lower the water surface by 0.5 feet at the lower end of Farm Island, 0.1 feet at the lower end of LaFramoise Island and essentially do nothing for profiles above the Bad River with the release of 150,000 cfs.

If you have any other questions, please let me know.

[redacted]
Chief, Hydraulics Section
U.S. Army Corps of Engineers
1616 Capitol Ave, Suite 9000
Omaha, NE 68102-9000
W: [redacted]
BB: [redacted]
[redacted]@usace.army.mil

-----Original Message-----
From: [redacted] NWO
Sent: Tuesday, May 31, 2011 10:22 PM
To: [redacted] NWO; Farhat, Jody S NWD02
Cc: [redacted] NWO; [redacted] NWO; [redacted] NWO; [redacted] NWO
Subject: FW: Question re: drawing down Lake Sharp

[redacted]

This is becoming the biggest question that I can't answer. I have been called by a few of the engineers in SD DENR (friends) and by the Governor's staff on why we're not reducing the level of Lake Sharpe by 3-5 ft to lessen the impact of flooding in Pierre and Fort Pierre. I asked SDEM today to make the request but first to identify the elevation as to which they would like Lake Sharpe at. They contacted the DENR and they would not recommend an elevation. Therefore, I did not receive an official request today. I know about the court settlement and the process outlined for Tribal negotiations before dropping below 1418.0. The State has determined there would be no impact to the tribes' water supply and the cultural site exposure issues could be reduced with increased surveillance. It's the hydrologic reasons I can't explain. Can you call me or send me data that would support our forecast that only reduces Lake Sharpe to 1419.3 for the duration of the event. If I can get the available technical information I can explain it to the Governor tomorrow in Pierre. As he requested below.

The follow on questions I will need to know is: Do we have time for the draw down and would there be negative impacts felt by the Dakota Dunes area if we do?

Thanks in advance for your help.

[redacted]
Oahe Project
[redacted]
[redacted]
SD State EOC

-----Original Message-----
From: Jason.Glodt@state.sd.us [mailto:Jason.Glodt@state.sd.us]
Sent: Tuesday, May 31, 2011 9:47 PM
To: [redacted] NWO
Cc: Kristi.Turman@state.sd.us; Trevor.Jones@state.sd.us; Tina.Titze@state.sd.us; Tony.Venhuizen@state.sd.us
Subject: Question re: drawing down Lake Sharp

Hello [redacted], Governor Daugaard would like to know if there would be any adverse impacts to Dakota Dunes if we were to draw down Lake Sharp several feet and utilize available capacity in Francis Case. Can you provide an answer to this question? He would like to meet with you and appropriate Corps officials tomorrow at noon to discuss. Let me know if that works for you.

Jason Glodt
Office of the Governor
605.280.7767

Classification: UNCLASSIFIED
Caveats: NONE

[redacted] NWO

From: Williamson, Eileen L NWO
Sent: Wednesday, June 01, 2011 9:42 AM
To: Farhat, Jody S NWD02
Subject: RE: Facebook Q and As (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

Thank you!

-----Original Message-----
From: Farhat, Jody S NWD02
Sent: Wednesday, June 01, 2011 9:39 AM
To: Williamson, Eileen L NWO; MRJIC; Farmer, Monique L NWO; Oldham, Margaret NWO; [redacted] NWO
Cc: Ruch, Robert J COL NWO
Subject: RE: Facebook Q and As (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

I'm working on them

-----Original Message-----
From: Williamson, Eileen L NWO
Sent: Wednesday, June 01, 2011 9:25 AM
To: Williamson, Eileen L NWO; Farhat, Jody S NWD02; MRJIC; Farmer, Monique L NWO; Oldham, Margaret NWO; [redacted] NWO
Cc: Ruch, Robert J COL NWO
Subject: RE: Facebook Q and As (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

Can I get a confirmation that someone is working on these?

ELW

-----Original Message-----
From: Williamson, Eileen L NWO
Sent: Wednesday, June 01, 2011 7:44 AM
To: Farhat, Jody S NWD02; MRJIC; Farmer, Monique L NWO; Oldham, Margaret NWO; [redacted] NWO
Cc: Ruch, Robert J COL NWO
Subject: Facebook Q and As (UNCLASSIFIED)
Importance: High

Classification: UNCLASSIFIED
Caveats: NONE

All,

At yesterday's CMT, Col Ruch asked me to make sure we are answering questions on Facebook.

Some of the questions are above my level of knowledge/understanding.

Rather than try to answer each question directly, I summarized the questions and need a little help with answers.

1. Although forecasts change, how long do we anticipate the flows at 150k cfs?

2. There is criticism of holding releases for the birds.
http://www.keloland.com/NewsDetail6162.cfm?Id=115979

3. Need a general statement about the releases that were made last year and through the winter. (Notes on ice jams might be helpful)

4. How about a background on the spillway at Garrison? Have a statement from someone that potential outflow from fully open spillway at Garrison is 827,000 cfs - Obviously NOT our plan. Can we talk about HOW that works?

5. Need some notes and comments about dam safety, that the dams are safe.

****

Eileen L. Williamson

Public Affairs Specialist

U.S. Army Corps of Engineers

Office: 402-995-2417

Mobile: 402-779-1448

eileen.l.williamson@usace.army.mil

Internet: nwo.usace.army.mil <https://www.nwo.usace.army.mil/>

Facebook: facebook.com/OmahaUSACE <http://www.facebook.com/OmahaUSACE>

Twitter: twitter.com/OmahaUSACE <http://www.twitter.com/OmahaUSACE>

[redacted] NWO

From: [redacted] NWO
Sent: Wednesday, June 01, 2011 9:41 AM
To: Schenk, Kathryn M NWO
Cc: Blechinger, Erik T NWO; Wingert, Kevin M NWO; [redacted] NWO; [redacted] NWO; Evenson, Dale W NWO; [redacted] NWO; Ruch, Robert J COL NWO; [redacted] NWO; Farhat, Jody S NWD02; [redacted] NWD02; Oldham, Margaret NWO; Johnston, Paul T HQ@ NWO; [redacted] NWO
Subject: Garrison Spillway Gate Opening (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

Katie,

Just talked with Kevin Wingert concerning the media event at Garrison. Glad to report that everything is going well. They currently have 7 center gates open to the 1 foot mark. The project had previously taken out the culverts in the road below the spillway so the flow is currently going through the road and down the existing channel, no backing up of the water along the road has occurred to date. It is expected that an additional 7 gates will be opened at 2000 this evening.

Traffic and attendance has been manageable, with Linda Phelps and her team doing an excellent job. There have been about ten media outlets involved so far with TV, radio and print being represented. Kevin told me that Dale Evenson did an excellent job on camera, explaining the operation of the dam and gates. It appears to be getting decent coverage. Kevin is continuing to do phone interviews as they come in.

Just thought I would let you know an initial report. Again hats off to Linda, Dale, Kevin and team for an excellent start to historic day one! Will let you know if anything additional comes up.

Thanks,

[redacted]

Classification: UNCLASSIFIED
Caveats: NONE

[redacted] NWO

From: Quinn, Kevin R NWO
Sent: Wednesday, June 01, 2011 9:36 AM
To: DLL-CENWO-ALL Employees; DLL-CENWD Zorinsky-Floor 3
Subject: Letter from Division Commander - Distributed to media (UNCLASSIFIED)
Attachments: NRGenMcMahon OP ED Article 2011.docx

Classification: UNCLASSIFIED
Caveats: NONE

FYSA

Classification: UNCLASSIFIED
Caveats: NONE

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U.S. ARMY CORPS OF ENGINEERS

NEWS RELEASE

For Immediate Release: June 27, 2011

Contact: Kevin R. Quinn 402-995-2419
kevin.r.quinn@usace.army.mil

Brigadier General McMahon: Corps committed to flood fight

By Brig. Gen. John McMahon

Omaha, Neb. – Prolonged heavy rain, coupled with melting record snowpack, is causing flows and reservoir releases of historic proportions and flooding along the Missouri River and many of its tributaries throughout Montana, North Dakota, South Dakota, Nebraska, Iowa, Kansas and Missouri. Severe personal and financial losses to individuals, families and businesses are painful and regrettable. Unfortunately, conditions are worsening in the near term as there is no relief from precipitation in the basin. Without higher releases, the integrity of the system would be jeopardized and loss of regulated flows likely. More water is coming.

To deal with the onslaught of water, the Corps is stepping up reservoir releases and sending record amounts of water downstream. Reservoir releases on the Missouri have changed several times in just the past few weeks, due to changing daily forecasts and increasing precipitation in Wyoming, Montana, North Dakota and South Dakota. The Corps will soon be releasing 150,000 cubic feet per second from five of our six main stem dams, which will result in much higher levels on the river downstream, on an earlier time line than originally forecast.

The Army Corps of Engineers takes its flood risk management and water management responsibilities very seriously. The Corps is doing everything within its ability to manage the flows from its reservoirs to reduce risk from current and future high water events throughout the system.

The Corps has dispatched teams of experts, awarded multiple emergency construction contracts and issued several million sandbags and numerous pumps throughout the basin to support local flood fighting efforts. Our daily emphasis on dam safety ensures that the dams will maintain their integrity through this challenging weather event. Without the reservoirs, downstream flows and flood damages in coming weeks would be much higher.

We are continuously monitoring the situation on the Missouri River and its tributaries as well as weather forecasts to make timely adjustments to the planned releases in accordance with our statutory responsibilities. Forecasts continue to show significant rainfall and snow melt throughout the basin. Our operations will continue to take the best available information into account and make adjustments to system flows accordingly. We are committed to sharing information in a timely manner and to conducting our operations transparently.

This will be a long, sometimes frustrating and intense effort as the situation evolves and as we work together to avoid loss of life, minimize damages and help communities deal with the situation. The Corps is committed to doing its best in close collaboration with city, county, state and federal agencies as well as Congressional representatives and others as we address this daunting challenge.

###

Brig. General McMahon is the commander of the Northwestern Division of the Army Corps of Engineers. He oversees the operation of dams and reservoirs throughout the Missouri River basin.

[redacted] NWO

From: Williamson, Eileen L NWO
Sent: Wednesday, June 01, 2011 9:25 AM
To: Williamson, Eileen L NWO; Farhat, Jody S NWD02; MRJIC; Farmer, Monique L NWO; Oldham, Margaret NWO; [redacted] NWO
Cc: Ruch, Robert J COL NWO
Subject: RE: Facebook Q and As (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

Can I get a confirmation that someone is working on these?

ELW

-----Original Message-----
From: Williamson, Eileen L NWO
Sent: Wednesday, June 01, 2011 7:44 AM
To: Farhat, Jody S NWD02; MRJIC; Farmer, Monique L NWO; Oldham, Margaret NWO; [redacted], [redacted] NWO
Cc: Ruch, Robert J COL NWO
Subject: Facebook Q and As (UNCLASSIFIED)
Importance: High

Classification: UNCLASSIFIED
Caveats: NONE

All,

At yesterday's CMT, Col Ruch asked me to make sure we are answering questions on Facebook.

Some of the questions are above my level of knowledge/understanding.

Rather than try to answer each question directly, I summarized the questions and need a little help with answers.

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2. There is criticism of holding releases for the birds.
http://www.keloland.com/NewsDetail6162.cfm?Id=115979

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5. Need some notes and comments about dam safety, that the dams are safe.

****

Eileen L. Williamson

Public Affairs Specialist

U.S. Army Corps of Engineers

Office: 402-995-2417

Mobile: 402-779-1448

eileen.l.williamson@usace.army.mil

Internet: nwo.usace.army.mil <https://www.nwo.usace.army.mil/>

Facebook: facebook.com/OmahaUSACE <http://www.facebook.com/OmahaUSACE>

Twitter: twitter.com/OmahaUSACE <http://www.twitter.com/OmahaUSACE>

****

Classification: UNCLASSIFIED
Caveats: NONE

Classification: UNCLASSIFIED
Caveats: NONE

[redacted] NWO

From: Beaird, Michael L NWD
Sent: Wednesday, June 01, 2011 8:45 AM
To: [redacted] NWD
Cc: CENWD-EOC NWD; Farhat, Jody S NWD02; [redacted] NWO
Subject: Notes from the UOC Brief, Wednesday 0900 EDT 1 June 2011 (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

During the 0900 (R) (EDT) UOC Brief Ms [redacted] asked about the request and response to the Standing Rock Sioux Tribe. COL Ruch had reported yesterday that Omaha was sending a person to them to provide technical assistance. Because of interest raise by FEMA and several USACE people she was concerned that there might be a problem or a potential issue. She asked that Omaha provide a summary to explain the background (history), the request and the response. She also asked that this action be reported in the Omaha SITREPs until the response is closed.

Ms [redacted] also asked that the discussions about the Missouri River releases include stages the relate to the cfs releases, the flows are good, but stages depict impact and are better understood by the non-H&H people. She also asked for a comparison of impacts (as we know) on communities downstream and in comparison to the 93 and 97 floods. No action person was identified, but no matter who at the UOC gets this, someone in NWD will do it.

[redacted]

Classification: UNCLASSIFIED
Caveats: NONE

[redacted] NWO

From: [redacted] NWO
Sent: Wednesday, June 01, 2011 8:41 AM
To: Farhat, Jody S NWD02
Subject: IA National Guard inquiry (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

Jody,

Captain [redacted] with the IA National Guard Joint Information Center would like to speak to you about the release schedules. Can you contact him at 515-252-4701/4710?

Jennifer

[redacted]
Outreach Specialist
Planning Branch
Corps of Engineers, Omaha District
1616 Capitol Avenue
Omaha, NE 68102
[redacted]

Classification: UNCLASSIFIED
Caveats: NONE

[redacted] NWO

From: Williamson, Eileen L NWO
Sent: Wednesday, June 01, 2011 8:20 AM
To: [redacted] NWO; Farhat, Jody S NWD02
Subject: Data Availability (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

Another question.

Why did the Corps quit posting reservoir info last night at 21:00 ie hourly DCP Data and etc etc?

****

Eileen L. Williamson

Public Affairs Specialist

U.S. Army Corps of Engineers

Office: 402-995-2417

Mobile: 402-779-1448

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****

Classification: UNCLASSIFIED
Caveats: NONE

[redacted] NWO

From: Williamson, Eileen L NWO
Sent: Wednesday, June 01, 2011 7:44 AM
To: Farhat, Jody S NWD02; MRJIC; Farmer, Monique L NWO; Oldham, Margaret NWO; [redacted] NWO
Cc: Ruch, Robert J COL NWO
Subject: Facebook Q and As (UNCLASSIFIED)

Importance: High

Classification: UNCLASSIFIED
Caveats: NONE

All,

At yesterday's CMT, Col Ruch asked me to make sure we are answering questions on Facebook.

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5. Need some notes and comments about dam safety, that the dams are safe.

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Twitter: twitter.com/OmahaUSACE <http://www.twitter.com/OmahaUSACE>

****

Classification: UNCLASSIFIED
Caveats: NONE

[redacted] NWO

From: Z.Gurley [redacted]
Sent: Wednesday, June 01, 2011 7:22 AM
To: Farhat, Jody S NWD02
Subject: Pierre/Ft. Pierre flooding

I am saddened deeply by the reports I am getting in Colorado from folks I grew up with in Pierre South Dakota. Pierre is looking at a terrible disaster as a result of the flooding that is about to shift into high gear. It is doubly distressing when one considers the miscalculations and just plain stupid decisions made by the Corps of Engineers. The water crisis did not happen overnight. I could go into detail about the winter snow amounts in Montana, the water level build up behind Oahe, and upstream, throughout the winter etc etc but that will take up to much space. I just want you to know that the Corps screwed up and an entire community and a wonderful region that are dear to my heart are now going to be damaged and ravaged for years. The folks that live there are tough, good people and they will overcome and rebuild. But this could have been avoided. You and the organization that you work for should be very ashamed and embarrassed by your actions (or lack thereof). Have a good day.

[redacted] NWO

From: [redacted] NWD
Sent: Thursday, June 02, 2011 10:13 PM
To: Farhat, Jody S NWD02
Cc: [redacted] NWO
Subject: RE: WM Update (UNCLASSIFIED)

Jody,

Can you email this to me for my report today? I'm working on it now.

[redacted]
Contingency Operations Officer
Readiness and Contingency Operations
Northwestern Division
US Army Corps of Engineers
Desk: [redacted]
Cell: [redacted]
[redacted]@usace.army.mil
[redacted]@usace.army.smil.mil
Emergency Satellite Phone: 8816-5142-9533 Emergency Cell: 503-888-3656

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-----Original Message-----
From: Tipton, Robert A Col NWD
Sent: Wednesday, June 01, 2011 5:31 PM
To: Farhat, Jody S NWD02; [redacted] NWD; [redacted] NWD
Cc: [redacted] NWO
Subject: RE: WM Update (UNCLASSIFIED)

Thanks Jody....

My thoughts are that we will take it at the best time of the day that makes sense for you to update it (and you can't say there is no sensible time :)). We really need this probably before 1000 PST or 1300 CST daily....but again, if your battle rhythm makes is better to do it a little later, we can live with that as well as long as we are consistent with the as of time.

[redacted] - what any thought on this?

Robert A. Tipton, P.E.
COL, EN
Deputy Commander
Northwestern Division
U.S. Army Corps of Engineers

503-808-3701

-----Original Message-----
From: Farhat, Jody S NWD02
Sent: Wednesday, June 01, 2011 5:04 PM
To: Tipton, Robert A Col NWD; [redacted] NWD; [redacted] NWD
Cc: Mcallister, Roy F. Jr NWO
Subject: RE: WM Update (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

Sir - I've asked Roy McAllister to update it for you daily. Please let him know what time you need it.

-----Original Message-----
From: Tipton, Robert A Col NWD
Sent: Wednesday, June 01, 2011 6:03 PM
To: [redacted] NWD; [redacted] NWD; Farhat, Jody S NWD02
Subject: WM Update

Team,

The CG likes the stage report that was prepared for him to day and attached below. Ray, please work with Jody on how we can work this smart to get it updated on a daily basis and we will also use this to keep HQUSACE updated as well.

Jody - my thoughts are that you could just use this format on your website in lieu of the one you posted and we could just pull it from that site...I know this is a little more information than you were posting before, but this is what we need to feed the beast...seems to me that this may be the most efficient way of doing it.

[redacted] - Please discuss with Jody the best way to do this. This report will be used by the CG, included in the nightly SITREP and by our congressional liaison folks. The attached report can be included in tonight's SITREP

RT

Robert A. Tipton, P.E.
COL, EN
Deputy Commander
Northwestern Division
U.S. Army Corps of Engineers

503-808-3701

Classification: UNCLASSIFIED
Caveats: NONE

[redacted] NWO

From: [redacted] NWD
Sent: Thursday, June 02, 2011 8:41 PM
To: Farhat, Jody S NWD02
Cc: [redacted] NWD02; [redacted] NWD02; [redacted] NWO; [redacted] NWD; Blechinger, Erik T NWO
Subject: RE: Briefing for Sen Thune (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

Thanks Jody and team!

[redacted]

-----Original Message-----
From: Farhat, Jody S NWD02
Sent: Thursday, June 02, 2011 6:29 PM
To: [redacted] NWD
Cc: [redacted] NWD02; [redacted] NWD02; [redacted] NWO; [redacted] NWD; Blechinger, Erik T NWO
Subject: Briefing for Sen Thune (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

[redacted], below is a link to my part of the briefing for Sen. Thune.

I talked to Kim Thomas. She said that COL Ruch sent their part of the briefing to BG McMahon earlier this afternoon prior to his phone call with Thune.

ftp://ftp.usace.army.mil/usace/nwd/Mo%20Flooding/BG%20McMahon%202%20June%2011.pptx

Let me know if you have any questions or want any additional information. I'm heading home now, but will be available by phone in about 30 minutes.

VR,
Jody

Jody Farhat, P.E.
Chief, Missouri River Basin Water Management

jody.s.farhat@usace.army.mil
Office: 402-996-3840
Cell: 402-350-1417
[redacted]

Classification: UNCLASSIFIED
Caveats: NONE

[redacted] NWO

From: Blechinger, Erik T NWO
Sent: Thursday, June 02, 2011 7:48 PM
To: Ruch, Robert J COL NWO; Hofmann, Anthony J COL NWK; Oldham, Margaret NWO; [redacted] NWK; Farhat, Jody S NWD02
Cc: [redacted] NWK; [redacted] NWO; [redacted] NWK; [redacted] NWO
Subject: Commander's Remarks

Gentlemen;

Just got done with an AAR with the CG. He would like to have scripts for Jody, COL's Hofmann and Ruch prior to the 1800 call, just for SA. He wants them distributed to COL Tipton, John Leighow, BG McMahon and Witt. You can either send to me and I can send them forward or you can send directly to them. Whatever works for you. 30 minutes prior to the call at the latest if possible. Thanks.

Erik

[redacted] NWO

From: [redacted] NWD02
Sent: Thursday, June 02, 2011 7:46 PM
To: [redacted] NWD
Cc: Farhat, Jody S NWD02
Subject: Re: MoDOT's Monday Conference Call (UNCLASSIFIED)

[redacted]

I'll put it on my schedule.

[redacted]

[redacted]
MRBWM Res Reg Team Lead
[redacted] (Office)
[redacted] (BB)

Message sent via my BlackBerry Wireless Device

----- Original Message -----
From: Farhat, Jody S NWD02
To: [redacted] NWD; [redacted] NWD02; Swenson, Michael A NWD02
Sent: Thu Jun 02 17:14:04 2011
Subject: RE: MoDOT's Monday Conference Call (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

[redacted] - we'll try to have someone sit in on it with you. Kevin - that would be you or one of your staff if you're not available.

Jody

-----Original Message-----
From: [redacted] NWD
Sent: Thursday, June 02, 2011 4:28 PM
To: Farhat, Jody S NWD02; [redacted] NWD02; [redacted] NWD02
Subject: FW: MoDOT's Monday Conference Call (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

I have been invited to this initial MO Riv flood impact call with MoDOT. It may be helpful to have someone from Water Management to also attend. If not I can cover to a point and take notes on questions I cannot cover.

[redacted]

-----Original Message-----
From: Thomas.Blair@modot.mo.gov [mailto:Thomas.Blair@modot.mo.gov]
Sent: Thursday, June 02, 2011 3:34 PM

To: [redacted] NWD
Subject: MoDOT's Monday Conference Call

[redacted]

Thanks for the great conversation. Below you will find the information for Monday's conference call.

MoDOT has a meeting/conference call scheduled for Monday at 11:00 a.m.(see invitation below). Please call 314-275-1530 code 06060# , so you can participate in the meeting. MoDNR and NOAA will also be participating.

Tom Blair, P.E.
MoDOT Assistant District Engineer - St. Louis Region 1590 Woodlake Drive Chesterfield, MO 63017 Thomas.Blair@modot.mo.gov
314-453-1803

June 2011 flood impact meeting - Missouri river

Calendar
Entry Type Mon 06/06/2011 11:00 AM - 12:00 PM

Judy A Wagner

Chair:
Owen W Hasson/D6/MODOT
Sent By:
LNTravler1/MODOT

Location:
MoDOT Traffic Management Center (TMC). Glass situation room or teleconference 314-275-1530 code
06060#

Judy A Wagner/D6/MODOT, Thomas K Blair/D6/MODOT, skip.ricketts@dnr.mo.gov, James R Gremaud/D6/MODOT, Mark.Fuchs@noaa.gov, Teresa A Krenning/D6/MODOT, Rebecca D Allmeroth/D6/MODOT

Classification: UNCLASSIFIED
Caveats: NONE

[redacted] NWO

From: Oldham, Margaret NWO
Sent: Thursday, June 02, 2011 7:25 PM
To: [redacted] NWD; Blechinger, Erik T NWO; Farhat, Jody S NWD02
Cc: [redacted] NWK; Quinn, Kevin R NWO; Farmer, Monique L NWO
Subject: Col. Ruch's comments during 2 June, 6 p.m. News Conference (UNCLASSIFIED)
Attachments: final_Col Ruch Update for News Conference_June 2.docx

Classification: UNCLASSIFIED
Caveats: NONE

Comments made by Col. Ruch tonight. If you do not wish to receive copies each day, just let me know.

VR

Maggie Oldham
Public Affairs Officer
Omaha District, USACE
Office: (402) 995-2416
BB: (402) 650-8154
margaret.e.oldham@usace.army.mil

Classification: UNCLASSIFIED
Caveats: NONE

Col Ruch – Update for News Conference – Thurs 2 June

Good evening. Again tonight, I'm focused on sharing new information with you.

I cannot over-emphasize the fact that protecting lives is our number-one priority. I will continue to remind the public to remain vigilant of the safety risks associated with these high water events.

I assure you we are doing everything in our power and authorities to assist communities, and we will stand by them until this event is over…as well as through recovery.

This is a historic event based on historic inflows into the Missouri River System. As I mentioned during yesterday's call, the monthly inflow of 10.5 MAF in May was the second highest monthly total from 1898-2011, exceeded only in April of 1952 (13.2 MAF).

We've put out a lot of useful resources on Facebook and on the Omaha District Web Page. I want to remind you of the inundation mapping that's available as well as answers to commonly asked questions. We are offering these communication products to help communities and citizens prepare for the high water events. Please call us with any questions and work with your local officials to determine any necessary preparations you should make in your area.

Across the basin, the corps has supplied 12.1 million sandbags, 12 pumps, nearly 1,400 rolls of poly and 28,840 linear feet of Hesco bastions. 6 million sandbags on their way in. This is a national effort with many additional supplies coming in from across the country.

Many U.S. Army Corps of Engineers personnel including hydrologists, geologists, surveyors, geotechnical engineers, and contracting officers, are on site at strategic areas along the river meeting with local communities to see how we can assist to meet their needs.

MONTANA

Our Fort Peck Project Office is assisting Big Horn County with their request for sandbags and has issued rolls of poly to the Fort Peck Tribe. The team is also meeting with officials in Roundup to address their concerns about critical infrastructure. Staff from Fort Peck also attended a flood preparedness meeting in Wolf Point to provide information and answer questions.

NORTH DAKOTA

Corps staff are providing technical assistance at the request of Mercer County to look at critical infrastructure concerns in the City of Stanton.

We put in another relief well and continue to place berm material at Williston. We are planning to continue surveillance monitoring.

The spillway gates at Garrison Dam reopened today to pass floodwaters. The plan is to continue passing floodwater through the gates until 6 p.m. Then, we will re-close the gates and re-inspect the minor surface erosion which we noticed on the spillway apron yesterday. If the erosion persists, we will address the issue with a contract to repair it. This likely occurred from natural freezing and thawing action over time.

As I said yesterday, the temporary closure of the spillway gates yesterday has NO impact on the current forecast for water releases as the additional water was released through the regulating tunnels, which are next to the powerhouse outlet works on the west side of the dam. The regulating tunnels allow us to continue to meet the release schedule while the evaluation of the surface deterioration is completed.

At Bismarck and Mandan we are on schedule to move out with releases as planned. At both sites, 100% completion of construction is anticipated for June 3rd.

Levees- Bismarck - 7.2 miles

Contracts are moving forward. Everything has been awarded. The overall project is 85% complete.

Levees - Mandan - 2.8 miles
Mandan project is 25% complete. The contractor is working with three crews on earthen levee and hescos.

--Our Tech Team, Contracting Team, Construction Rep, and Corps Tribal Liaison are on site working with the Standing Rock Sioux Tribe to address their concerns. We selected a contractor today to address erosion issues of critical public infrastructure at the Sitting Bull Site and the Fort Yates Water Intake.

SOUTH DAKOTA –
Construction continues on schedule at Pierre/Fort Pierre. We are on target to meet the June 4 completion date at Pierre and Fort Pierre.

At Pierre, 100 percent of the base contract is complete. 50% needs to be brought up to final grade.

The north levee at Fort Pierre is at elevation 1434 at 85% of the length. We are at 80% complete at base contract grade and 20% complete at base contract+2'. At Fort Pierre south, 40% is at final grade and the rest is at base contract grade.

We've provided sandbags to Charles Mix County today.

We awarded a contract to Western of Sioux City for $939,900 for work at Dakota Dunes. Construction has begun. We are also sending pumps from our Oahe Project office.

NEBRASKA –

We sent a representative to a public meeting in South Sioux City yesterday to provide information and answer questions. A contract will be awarded tonight for work in South Sioux City to construct a temporary risk reduction measure to protect critical public infrastructure.

Our team also met with officials today in Dakota City to meet the challenges there as well as at Offutt Air Force base to address their concerns.

We are working with officials to provide sandbags to the community of Decatur.

We are providing technical assistance to Cass County. We are sending pumps from our Fort Randall and Gavins Point Project Offices.

At North Platte, we awarded a contract for a temporary levee to reduce flooding risk for the city. Construction is 15% complete and we expect to be on track to finish by June 6. Corps staff are continuing to meet with communities from Grand Island to the State Line on the North Platte River.

IOWA

We are working a request from Sioux City for sandbags and rolls of plastic. Numerous sandbags are being deployed.

In addition we've received a request from the State of Iowa for technical and direct assistance for many communities along the Missouri River Basin. We are currently coordinating meetings with several counties to address their concerns.

Sandbags will be picked up today for Blencoe. We are working with Mills County on a request for sandbags to protect critical infrastructure in Hamburg.

WYOMING

Construction is complete at Elk Mountain. Hesco and sandbags have been provided to meet that community's needs.

We are addressing a request for technical assistance for Fremont County (Lander & Wind River Reservation) and the North Platte Basin. We have a team onsite.

***

In closing, I have total confidence in the structural integrity of our dams. Our dams are inspected and maintained on rigid schedules. This is what they were designed to do. They are well prepared to handle these high waters.

I want to emphasize that with these forecasts, we should be able to avoid the loss of any life in these high water events. Folks should take these forecasts seriously and work with local officials about evacuation procedures.

[redacted] NWO

From: [redacted] NWO
Sent: Thursday, June 02, 2011 7:17 PM
To: [redacted] NWO
Cc: [redacted] NWD02; Farhat, Jody S NWD02; [redacted] NWO
Subject: 3 Jun Releases (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

[redacted]

Jody has moved the releases for tomorrow to go up at 8am and 4pm.

Thanks - [redacted]

Classification: UNCLASSIFIED
Caveats: NONE

[redacted] NWO

From: [redacted] NWD
Sent: Thursday, June 02, 2011 7:06 PM
To: [redacted] NWK; [redacted] NWK
Cc: [redacted] NWD; Farhat, Jody S NWD02
Subject: NWK water management maps

[redacted] / [redacted],

CG is looking for a map showing the various main stem and tributaries in NWK's AOR. Got any to share?

Thanks,
[redacted]

[redacted] NWO

From: [redacted] NWO
Sent: Thursday, June 02, 2011 5:18 PM
To: 'terry_ellsworth@fws.gov'; 'mmarohl@usbr.gov'; 'todd_frerichs@fws.gov'; 'jalee@nd.gov'; 'jkelsch@nd.gov'; 'glevi@nd.gov'; 'kkovar@daktel.com'; 'Dyke, Steve R.'; 'davek@daktel.com'; 'ggere@usbr.gov'; 'dfewless@state.nd.us'; 'kgoff@nd.gov'; 'lloyd_jones@fws.gov'; 'rijohnson@nd.gov'; 'rfwagner@nd.gov'; 'lrerickson@nd.gov'; 'tdunnigan@KFYRTV.com'; 'pjhuges4@bis.midco.net'
Cc: 'DKrogstad@usbr.gov'; 'Aycock, Gordon L'; 'Erger, Patrick J'; [redacted] NWO; [redacted] NWD02; Farhat, Jody S NWD02; [redacted] NWO; [redacted] NWO; [redacted] NWO; [redacted] NWO; [redacted] NWO; Bertino, John J Jr NWO; [redacted] NWD02; [redacted] NWO; [redacted] NWO; [redacted] NWO; [redacted] NWO; [redacted] NWO; [redacted] NWO; [redacted] NWO; [redacted] NWO; Schenk, Kathryn M NWO; [redacted] NWO; [redacted] NWO; [redacted] NWO; [redacted] NWO; [redacted] NWO; [redacted] NWO; [redacted]

BUILDING STRONG®

U.S. ARMY CORPS OF ENGINEERS

NEWS RELEASE

For Immediate Release: June 2, 2011

Contact: Kevin R. Quinn 402-995-2419
kevin.r.quinn@usace.army.mil
Tim Temeyer 402-995-2308
tim.e.temeyer@usace.army.mil

Army Corps of Engineers to hold Lake Audubon pool levels at 1850 until further notice.

Omaha, Neb. – Officials with the U.S. Army Corps of Engineers announced today that, until further notice, Lake Audubon levels will be held at a level of approximately 1850 feet above mean sea level (msl) as part of flood control regulation at Garrison Reservoir (Lake Sakakawea). Additional storage in Lake Audubon may be utilized in mid- to late June when mountain snowmelt runoff flows into Garrison Reservoir.

Lake Audubon has been continuing to rise at a rate of approximately 0.5 feet per day and at noon on June 2 was at a level of approximately 1849.4 feet msl. Pumping rates into Lake Audubon were reduced on June 2 so the rate of rise will be reduced to approximately 0.2 feet per day.

Over the next several weeks additional updates will be provided regarding planned pool levels in Lake Audubon. Landowners and residents along Lake Audubon should continue to be prepared for Lake Audubon pool levels as high as 1854, if additional storage into Lake Audubon is necessary.

Lake Audubon is a sub-impoundment of Garrison reservoir, located 8 miles northeast of Riverdale, N.D. Impounded by the Snake Creek Embankment, Lake Audubon was created in 1954 with the relocation of U.S. Highway 83 and a railroad across the Snake Creek Arm of Lake Sakakawea. The lake also provides fish and wildlife enhancement, and diversion of water for irrigation.

The Corps is coordinating with the Bureau of Reclamation, U.S. Fish and Wildlife Service, North Dakota Game and Fish Department, North Dakota State Water Commission, and the Garrison Diversion Conservancy District concerning the impacts of increased Lake Audubon pool levels.

Please follow us on Facebook (www.facebook.com/OmahaUSACE) and Twitter (www.twitter.com/OmahaUSACE) for the latest updates regarding our flood response operations. You can also find flood inundation maps and local emergency management contact information on our social media sites as well as our district Web site at http://www.nwo.usace.army.mil.

View daily and forecasted reservoir and river information on the Water Management section of the Northwestern Division homepage at: http://www.nwd-mr.usace.army.mil/rcc.

###

[redacted] NWO

From: Fong, Cecily S. [cfong@nd.gov]
Sent: Thursday, June 02, 2011 5:15 PM
Subject: Flood Map

New flood map: http://www.nd.gov/des/uploads/resources/722/2011-flood-event-map-06-02-2011-430pm.pdf

FYI…no changes from yesterday.

[redacted] NWO

From: [redacted] NWD
Sent: Thursday, June 02, 2011 4:28 PM
To: Farhat, Jody S NWD02; [redacted] NWD02; [redacted] NWD02
Subject: FW: MoDOT's Monday Conference Call (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

I have been invited to this initial MO Riv flood impact call with MoDOT. It may be helpful to have someone from Water Management to also attend. If not I can cover to a point and take notes on questions I cannot cover.

[redacted]

-----Original Message-----
From: Thomas.Blair@modot.mo.gov [mailto:Thomas.Blair@modot.mo.gov]
Sent: Thursday, June 02, 2011 3:34 PM
To: [redacted] NWD
Subject: MoDOT's Monday Conference Call

John,

Thanks for the great conversation. Below you will find the information for Monday's conference call.

MoDOT has a meeting/conference call scheduled for Monday at 11:00 a.m.(see invitation below). Please call 314-275-1530 code 06060# , so you can participate in the meeting. MoDNR and NOAA will also be participating.

Tom Blair, P.E.
MoDOT Assistant District Engineer - St. Louis Region 1590 Woodlake Drive Chesterfield, MO 63017 Thomas.Blair@modot.mo.gov
314-453-1803

June 2011 flood impact meeting - Missouri river

Calendar
Entry Type Mon 06/06/2011 11:00 AM - 12:00 PM

Judy A Wagner

Chair:
Owen W Hasson/D6/MODOT
Sent By:
LNTravler1/MODOT

Location:
MoDOT Traffic Management Center (TMC). Glass situation room or teleconference 314-275-1530 code
06060#

Judy A Wagner/D6/MODOT, Thomas K Blair/D6/MODOT, skip.ricketts@dnr.mo.gov, James R Gremaud/D6/MODOT, Mark.Fuchs@noaa.gov, Teresa A Krenning/D6/MODOT, Rebecca D Allmeroth/D6/MODOT

Classification: UNCLASSIFIED
Caveats: NONE

[redacted] NWO

From: Farmer, Monique L NWO
Sent: Thursday, June 02, 2011 4:21 PM
To: Farhat, Jody S NWD02
Subject: FW: Midnight Elevation graphic 20110602 (UNCLASSIFIED)
Attachments: USACE Mainstem Dam System daily elev 20110602.pdf

Classification: UNCLASSIFIED
Caveats: NONE

Will this help you in your reporting to Tipton and Grisoli. Would you like to include it on that slide you send up.

Eileen:

This would be useful for FB too. Jennyann plans to update it everyday. It's not blessed by Jody yet, so wait for that.

Monique

-----Original Message-----
From: Noack, Jennyann D ACE-IT
Sent: Thursday, June 02, 2011 4:16 PM
To: Farmer, Monique L NWO
Subject: Midnight Elevation graphic 20110602 (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

Jennyann Noack
Information Products Coordinator
U.S. Army Corps of Engineers
Omaha District
Work: 402-995-2645
Cell: 402-689-1891
Email: jennyann.d.noack@usace.army.mil

ACE-IT@NWO - CEIT-PMO-IP

Classification: UNCLASSIFIED
Caveats: NONE

Classification: UNCLASSIFIED
Caveats: NONE

Missouri River Main Stem Reservoir System

Midnight Elevation (EL) Forecast: June 2, 2011 (feet above mean sea level)

Mountain Snowmelt

EL 2249.7 FT

Spillway Gate Height: 2250 FT

Fort Peck: 3,675,000 Acre Feet (AF)
22.6% of Total Flood Control Storage (TFCS)

The reservoirs are to scale and represent the relative size of the **total flood control storage (annual + exclusive)** at the six Missouri River main stem projects.

1853.8 FT

Spillway Gate Height: 1854 FT

Garrison: 5,711,000 AF
35.1% TFCS

1619.2 FT

Spillway Gate Height: 1620 FT

Oahe: 4,303,000 AF
26.5% TFCS

Plains Snowmelt

1419.2 FT

Spillway Gate Height: 1423 FT

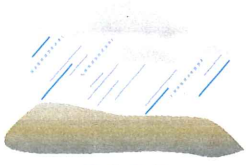
Big Bend: 177,000 AF
1.1% TFCS

Types of Missouri River Basin Runoff

1360.4 FT

Spillway Gate Height: 1375 FT

Fort Randall: 2,294,000 AF
14.1% TFCS



Rainfall

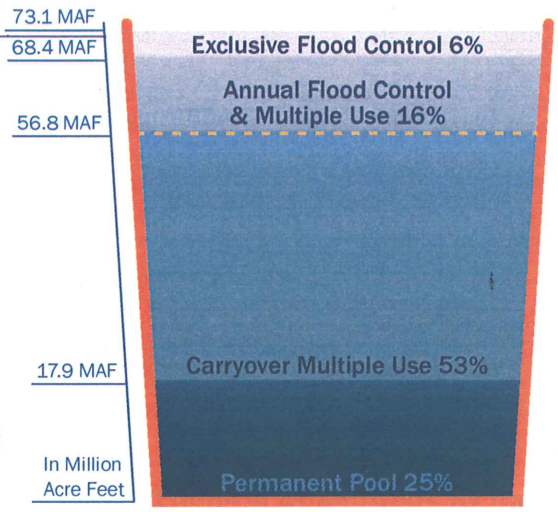
1206.5 FT

Spillway Gate Height: 1210 FT

Gavins Point: 108,000 AF
0.7% TFCS

System Zones & Allocations of the Total Flood Control Storage Capacity

Current System Storage: **70.7 MAF**



Flood Control Storage Capacity

Produced by the US Army Corps of Engineers, Omaha District, MRJIC, Updated on 2 June 2011, Contact: MRJIC@usace.army.mil or (402) 996-3877

[redacted] NWO

From: [redacted] NWD
Sent: Thursday, June 02, 2011 3:12 PM
To: 'BMCM Dan Kilkeary'; 'BMCM Dean Smith'; [redacted] USCG; '[redacted]'; 'LCDR [redacted]'; 'LCDR Scott Stoermer'; [redacted] NWO; [redacted] NWD; [redacted] MVS; [redacted] NWK; [redacted] NWK; Farhat, Jody S NWD02; [redacted] NWK; [redacted] NWD02; [redacted] VD; [redacted] HQ02; [redacted] NWK; [redacted] NWO; [redacted] NWK; [redacted] NWD; Schenk, Kathryn M NWO; [redacted] NWD02; [redacted] MVS; [redacted] NWD02; [redacted] NWO; [redacted] NWO; [redacted] NWO; [redacted] NWO; 'Bill Beacom'; 'Bill Jackson'; 'Dave Dewey'; 'David Smith'; 'Doug Clark'; 'Doug Halbert'; 'John Drew'; 'Kevin Holcer'; 'Lester Cruse 2'; Cruse, Lester External Stakeholder; 'Lynn Muench'; 'Mike Olson'; 'Paul Dolak'; 'Randy Asbury-CRP'; 'Ray Bohlken'; 'Roger Harris'; 'Steve Engemann'; 'Steve Engemann WK'; 'Tom More'; Wells, Mike MVS External Stakeholder
Subject: RE: MO RIV Levees Overtop Projections (UNCLASSIFIED)
Attachments: USACENonFederalLeveeExtendedForecast2June.pdf; USACEFederalLeveeExtendedForecast2June.pdf

Classification: UNCLASSIFIED
Caveats: NONE

Kansas City District posted updated versions of the Levee Overtoping Projections - Dated June 2, 2011 - Attached or click link:

http://www.nwk.usace.army.mil/Flood/Flood2011.cfm?cat=Levee

[redacted]

From: [redacted] NWD
Sent: Wednesday, June 01, 2011 4:25 PM
To: 'BMCM Dan Kilkeary'; 'BMCM Dean Smith'; [redacted] USCG; '[redacted]'; 'LCDR Jeffrey Morgan'; 'LCDR [redacted]'; [redacted] NWO; [redacted] NWD; [redacted] MVS; [redacted] NWK; [redacted] NWK; Farhat, Jody S NWD02; [redacted] NWK; [redacted] NWD02; [redacted] MVD; [redacted] HQ02; [redacted] NWK; [redacted] NWD; [redacted] NWO; [redacted] NWK; [redacted] NWD; Schenk, Kathryn M NWO; [redacted] NWD02; [redacted] MVS; [redacted] NWD02; [redacted] NWO; [redacted] NWO; [redacted] NWO; [redacted] NWO; 'Bill Beacom'; 'Bill Jackson'; 'Dave Dewey'; 'David Smith'; 'Doug Clark'; 'Doug Halbert'; 'John Drew'; 'Kevin Holcer'; 'Lester Cruse 2'; Cruse, Lester External Stakeholder; 'Lynn Muench'; 'Mike Olson'; 'Paul Dolak'; 'Randy Asbury-CRP'; 'Ray Bohlken'; 'Roger Harris'; 'Steve Engemann'; 'Steve Engemann WK'; 'Tom More'; [redacted] MVS External Stakeholder
Subject: MO RIV Levees Overtop Projections (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

WAP Team:

During our Waterways Action Plan call Lester Cruse asked for the river mile locations of the Federal Levees that are projected to be overtopped.

Levee Overtop Projections link here:

http://www.nwk.usace.army.mil/Flood/Flood2011.cfm?cat=Levee

The website includes both Non-Federal And Federal Levees. Attached is the projections for the Federal Levees.

Federal Levee projected to be overtopped with river mile locations

Unit R-500 (River Mile 484.5-480.0)

Unit L-488 (River Mile 476.0-465.0)

Unit L-246 (River Mile 250.0-238.8)

[redacted]

[redacted]

Classification: UNCLASSIFIED
Caveats: NONE

Classification: UNCLASSIFIED
Caveats: NONE

US Army Corps of Engineers
Kansas City District

Missouri River Extended Forecast
Probable Non-Federal Levee Status - June 2011

Report Produced: 6/2/11 11:52 AM
Gage Reading: USACE NWD RCC, 29 May

Lower	Higher	Freeboard Status
26	0	>5ft
42	8	2-5ft
7	26	<2ft
11	52	Overtopped
86	86	Total Status Reported
	106	Total Levees

	Est. Freeboard (ft)			Est. Stage		
Levee	Lower Forecast Stage	Higher Forecast Stage	Gage	Lower Forecast Stage	Higher Forecast Stage	OT Stage
Union Township Levee District	OT	OT	Rulo	26	26	24.5
Little Tarkio Drainage District No. 1	OT	OT	Rulo	26	26	25.0
Holt County Levee District No. 10, Hinkle Levee	OT	OT	Rulo	26	26	24.5
Holt County Levee District No. 9	OT	OT	Rulo	26	26	25.0
Canon Drainage District of Holt County	OT	OT	Rulo	26	26	26.0
Henry Pohl Levee	OT	OT	St Joe	27	32	25.0
Rushville-Sugar Lake	OT	OT	Atchison	30	34	27.0
Platte County Drainage District No. 1 Section 1	OT	OT	Atchison	30	34	27.0
Bean Lake Levee Association	OT	OT	Atchison	30	34	27.0
Grape-Bollin-Schwartz Levee Association	OT	OT	Atchison	30	34	30.0
Kansas Department of Corrections	OT	OT	Leavenworth	27	33	24.0
Wolcott Drainage District Section 1	8.0	OT	KCMO	30	39	38.0
Wolcott Drainage District Section 2	8.0	OT	KCMO	30	39	38.0
Wolcott Drainage District Section 3	8.0	OT	KCMO	30	39	38.0
Tri-County of Ray, Clay, Jackson, MO	4.0	OT	Sibley	28	33	32.0
Egypt Levee & Drainage District	6.0	<2.0	Sibley	28	33	34.0
MO Valley D&L Dist of Ray Co. MO, Section 1	7.0	3.0	Napoleon	25	29	32.0
MO Valley D&L Dist of Ray Co. MO, Section 2	7.0	3.0	Napoleon	25	29	32.0
MO Valley D&L Dist of Ray Co. MO, Section 3	7.0	3.0	Napoleon	25	29	32.0
Ray-Lafayette Levee Dist No. 1	4.5	<2.0	Napoleon	25	29	29.5
Henrietta-Crooked River L & D Dist, Sec 1	4.5	<2.0	Napoleon	25	29	29.5
Henrietta-Crooked River L & D Dist, Sec 2	5.0	<2.0	Waverly	27	31	32.0
Ray County Levee & Drainage District No. 2	5.0	<2.0	Waverly	27	31	32.0
Miles Point Drainage District	5.0	<2.0	Waverly	27	31	32.0
Cherry Valley Levee District	5.0	<2.0	Waverly	27	31	32.0
Baltimore Bend Levee	5.0	<2.0	Waverly	27	31	32.0
Belcher-Lozier Levee District	5.0	<2.0	Waverly	27	31	32.0
Sugartree Bottom Levee District	2.5	OT	Waverly	27	31	29.5
Saline-Lafayette Drainage District	3.0	OT	Waverly	27	31	30.0
Wakenda Levee District No. 1	5.0	<2.0	Waverly	27	31	32.0
Sambo Slough Levee District	5.0	<2.0	Waverly	27	31	32.0
Cole Lake Drainage District No. 2	3.0	OT	Waverly	27	31	30.0
Malta Bend Levee District	3.0	OT	Waverly	27	31	30.0
Root Levee District	5.0	<2.0	Waverly	27	31	32.0
Farmers D & L.D.	5.0	<2.0	Waverly	27	31	32.0
Teteseau Bend Levee District	5.0	<2.0	Waverly	27	31	32.0
Mi-De Levee District	5.5	<2.0	Miami	26	30	31.5
DeWitt D&L District of Carroll Co., Section 1	<2.0	OT	Miami	26	30	27.0
Dewitt D&L District of Carroll Co., Section 2	<2.0	OT	Miami	26	30	27.0
Miami Levee District No. 1	3.0	OT	Miami	26	30	29.0
Brunswick Levee District	<2.0	OT	Miami	26	30	27.0
Saline County Levee District No. 2	<2.0	OT	Miami	26	30	28.0
Cambridge Levee Assn., Inc. (NFP)	<2.0	OT	Glasgow	32	37	33.0
Northeastern Saline Levee Association	3.0	OT	Glasgow	32	37	35.0
Levee District Number 6 of Howard County	<2.0	OT	Glasgow	32	37	33.0
West Glasgow Levee District of Saline County, MO	4.0	OT	Glasgow	32	37	36.0
Levee District Number 3 of Howard County	9.0	3.0	Boonville	27	33	36.0
Levee District No. 7 of Howard County, Section 4	8.0	<2.0	Boonville	27	33	35.0
Linneman-Weekly Levee, Inc.	7.0	<2.0	Boonville	27	33	34.0
Levee District Number 2 of Howard County	8.0	<2.0	Boonville	27	33	35.0
Howard County Levee District No. 4	8.0	<2.0	Boonville	27	33	35.0
Bonne Femme Levee District No. 1	8.0	<2.0	Boonville	27	33	35.0
Levee District No. 1 of Cooper County	5.0	OT	Boonville	27	33	32.0

McBaine Levee District	3.5	OT	Boonville	27	33	30.5
Plow Boy Bend Levee	5.0	OT	Boonville	27	33	32.0
Hartsburg Levee District, Section 1	5.0	OT	Jefferson City	27	35	32.0
Hartsburg Levee District, Section 2	5.0	OT	Jefferson City	27	35	32.0
Hartsburg Levee District, Section 3	5.0	OT	Jefferson City	27	35	32.0
Prison Farm Levee	<2.0	OT	Jefferson City	27	35	29.0
Cole Junction Levee District	3.0	OT	Jefferson City	27	35	30.0
Renz Levee District	3.5	OT	Jefferson City	27	35	30.5
Capital View Drainage District	4.0	OT	Jefferson City	27	35	31.0
Rievaux Drainage District	5.0	OT	Jefferson City	27	35	32.0
Wainwright Levee District	4.0	OT	Jefferson City	27	35	31.0
Jacobs Levee District	4.0	OT	Jefferson City	27	35	31.0
Tebbetts East Levee District	3.0	OT	Jefferson City	27	35	30.0
Mokane Levee District	9.0	<2.0	Jefferson City	27	35	36.0
Steedman Levee District	6.0	OT	Jefferson City	27	35	33.0
Stoner Island Levee	3.0	OT	Jefferson City	27	35	30.0
Cedar City Drainage District	4.0	OT	Jefferson City	27	35	31.0
Chamois Levee District Section 1	4.0	OT	Hermann	27	33	31.0
A-1 Levee Association	5.5	OT	Hermann	27	33	32.5
Diermann Levee District	5.0	OT	Hermann	27	33	32.0
Morrison Lower Bottom Levee District	4.0	OT	Hermann	27	33	31.0
Tri-County Levee District, Section 1	9.0	3.0	Hermann	27	33	36.0
Tri-County Levee District Sec 2	7.0	<2.0	Hermann	27	33	34.0
Berger Levee District of Franklin County, MO	9.0	3.0	Hermann	27	33	36.0
MO Valley L.D. Sec 1	9.0	3.0	Hermann	27	33	36.0
Holtmeier Levee Association, Inc.	3.0	OT	Hermann	27	33	30.0
MO Valley L.D. Sec 2 (Charrette Bottom)	9.0	3.0	Hermann	27	33	36.0
St. Johns Bottom Levee Association, Inc.	5.0	OT	Hermann	27	33	32.0
Tuque Creek Levee	7.0	<2.0	Hermann	27	33	34.0
Labadie Bottom Levee Corporation, Section 4	5.0	OT	Hermann	27	33	32.0
Labadie Bottoms Levee District, Section 5	7.0	<2.0	Hermann	27	33	34.0
Labadie Bottoms Levee District, Section 6	7.0	<2.0	Hermann	27	33	34.0
St. Albans Partners Levee	7.0	<2.0	Hermann	27	33	34.0

Note: Probable range of levee freeboard based on latest extended stage predictions for the duration of the flood event; based on 150,000 cfs release from Gavins Point Dam and June-July rainfall patterns from 2007 through 2010. Overtopping (OT) stages are estimated based on past flood events and contain significant uncertainty.

US Army Corps of Engineers
Kansas City District

Missouri River Extended Forecast
Probable Federal Levee Status - June 2011

Lower	Higher	Freeboard Status
19	9	>5ft
4	5	2-5ft
0	6	<2ft
0	3	Overtopped
23	23	Total Status Reported
	23	Total Levees

Report Produced: 6/2/11 11:51 AM
Gage Reading: USACE NWD RCC, 29 May

	Est. Freeboard (ft)		Est. Stage (ft)			
Levee	Lower Forecast Stage	Higher Forecast Stage	Gage	Lower Forecast Stage	Higher Forecast Stage	OT Stage
MRLS 512-513-R (Richardson County D.D. No. 7) N	4.5	4.5	Rulo*	26	26	30.5
MRLS 500-R	5.0	OT	St Joe	27	32	32.0
MRLS 497-L	6.0	<2.0	St Joe	27	32	33.0
MRLS 488-L (Holt County District No. 7)	5.0	OT	St Joe	27	32	32.0
MRLS 482-R	9.0	4.0	St Joe	27	32	36.0
MRLS 476-L	9.5	4.5	St Joe	27	32	36.5
MRLS 471-460-R	5.5	<2.0	St Joe	27	32	32.5
MRLS 455-L	7.0	<2.0	St Joe	27	32	34.0
MRLS 448-443-L	10.5	5.5	St Joe	27	32	37.5
MRLS 440-R	9.0	5.0	Atchison	30	34	39.0
MRLS 408-L	7.0	<2.0	Leavenworth	27	33	34.0
MRLS 400-L	7.0	<2.0	Leavenworth	27	33	34.0
MRLS 385-L	23.5	14.5	KCMO	30	39	53.5
Fairfax - Jersey Creek	22.5	13.5	KCMO	30	39	52.5
North Kansas City Airport Unit	21.0	12.0	KCMO	30	39	51.0
North Kansas City Lower Unit	22.5	13.5	KCMO	30	39	52.5
CID, Missouri	21.5	12.5	KCMO	30	39	51.5
East Bottoms Unit	22.5	13.5	KCMO	30	39	52.5
Birmingham Unit	22.0	13.0	KCMO	30	39	52.0
MRLS 351-R, Section 1	20.5	11.5	KCMO	30	39	50.5
MRLS 246-L	4.5	OT	Glasgow	32	37	36.5
Lower Chariton River Levee District	5.5	<2.0	Glasgow	32	37	37.5
New Haven	11.0	5.0	Hermann	27	33	38.0

* Due to the uncertainty in the rating curve at Rulo for higher stages, an estimate of the higher forecast freeboard was not computed.

Note: Probable range of levee freeboard based on latest extended stage predictions for the duration of the flood event; based on 150,000 cfs release from Gavins Point Dam & June-July rainfall patterns from 2007-2010. Overtopping (OT) stages are estimated by comparing computed water surface profile elevations between gages with surveyed top of levee elevations. OT stages are the best estimates with available data.

[redacted] NWO

From: Farhat, Jody S NWD02
Sent: Thursday, June 02, 2011 3:12 PM
To: DLL-CENWD-PDR
Subject: FW: Garrison Dam Spillway Gates Open video (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

fyi

-----Original Message-----
From: Johnston, Paul T HQ@ NWO
Sent: Thursday, June 02, 2011 3:02 PM
To: Farhat, Jody S NWD02; [redacted] NWD02; [redacted] NWD02; [redacted] NWD02
Subject: FW: Garrison Dam Spillway Gates Open video (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

-----Original Message-----
From: [redacted] NWO
Sent: Thursday, June 02, 2011 2:13 PM
To: Schenk, Kathryn M NWO; Bertino, John J Jr NWO; [redacted] NWO; [redacted] NWO; [redacted] NWO; [redacted] NWO; [redacted] NWO; Johnston, Paul T HQ@ NWO; Blechinger, Erik T NWO; Oldham, Margaret NWO
Subject: FW: Garrison Dam Spillway Gates Open video (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

[redacted] really did a nice job on this segment!
http://www.youtube.com/watch?v=hxAB5jE3KcE

-----Original Message-----
From: Wingert, Kevin M NWO
Sent: Thursday, June 02, 2011 2:05 PM
To: [redacted] NWO
Cc: Farmer, Monique L NWO; Oldham, Margaret NWO; Quinn, Kevin R NWO; Williamson, Eileen L NWO
Subject: Garrison Dam Spillway Gates Open video (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

[redacted]

Below is the link for the video. Please feel free to share with whomever might be interested. Thanks.

http://www.youtube.com/watch?v=hxAB5jE3KcE

Very Respectfully,

Kevin Wingert
Public Affairs Specialist
U.S. Army Corps of Engineers Omaha District
Office: 402-995-2418
Cell: 402-779-1459
www.nwo.usace.army.mil

Classification: UNCLASSIFIED
Caveats: NONE

Classification: UNCLASSIFIED
Caveats: NONE

Classification: UNCLASSIFIED
Caveats: NONE

Classification: UNCLASSIFIED
Caveats: NONE

[redacted] NWO

From: Johnston, Paul T HQ@ NWO
Sent: Thursday, June 02, 2011 3:06 PM
To: Farhat, Jody S NWD02
Subject: RE: Talking points (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

Thank you

-----Original Message-----
From: Farhat, Jody S NWD02
Sent: Thursday, June 02, 2011 2:02 PM
To: Johnston, Paul T HQ@ NWO
Subject: Talking points (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

Jody Farhat, P.E.
Chief, Missouri River Basin Water Management

jody.s.farhat@usace.army.mil
Office: 402-996-3840
Cell: 402-350-1417
[redacted]

Classification: UNCLASSIFIED
Caveats: NONE

Classification: UNCLASSIFIED
Caveats: NONE

[redacted] NWO

From: Johnston, Paul T HQ@ NWO
Sent: Thursday, June 02, 2011 3:02 PM
To: Farhat, Jody S NWD02; [redacted] NWD02; [redacted] NWD02; [redacted] C NWD02
Subject: FW: Garrison Dam Spillway Gates Open video (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

-----Original Message-----
From: [redacted] NWO
Sent: Thursday, June 02, 2011 2:13 PM
To: Schenk, Kathryn M NWO; Bertino, John J Jr NWO; [redacted] NWO; [redacted] NWO; [redacted] NWO; [redacted] NWO; [redacted] NWO; Johnston, Paul T HQ@ NWO; Blechinger, Erik T NWO; Oldham, Margaret NWO
Subject: FW: Garrison Dam Spillway Gates Open video (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

[redacted] really did a nice job on this segment!
http://www.youtube.com/watch?v=hxAB5jE3KcE

-----Original Message-----
From: Wingert, Kevin M NWO
Sent: Thursday, June 02, 2011 2:05 PM
To: [redacted] NWO
Cc: Farmer, Monique L NWO; Oldham, Margaret NWO; Quinn, Kevin R NWO; Williamson, Eileen L NWO
Subject: Garrison Dam Spillway Gates Open video (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

[redacted]

Below is the link for the video. Please feel free to share with whomever might be interested. Thanks.

http://www.youtube.com/watch?v=hxAB5jE3KcE

Very Respectfully,

Kevin Wingert
Public Affairs Specialist
U.S. Army Corps of Engineers Omaha District
Office: 402-995-2418
Cell: 402-779-1459
www.nwo.usace.army.mil

Classification: UNCLASSIFIED

[redacted] NWO

From: [redacted] NWD
Sent: Thursday, June 02, 2011 2:41 PM
To: [redacted] NWO; Farhat, Jody S NWD02
Cc: [redacted] NWD; [redacted] NWD02; [redacted] NWD; [redacted] NWD
Subject: RE: Missouri River Basin Water Management Division Situation Report of 6-2-11 (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

[redacted] and Jody,

Excellent and comprehensive report. Thanks for sharing.

[redacted]

[redacted].
Chief, Business Technical Division
Northwestern Division, U.S. Army Corps of Engineers
Phone: [redacted]
Cell: [redacted]
[redacted]@usace.army.mil

-----Original Message-----
From: [redacted] NWO
Sent: Thursday, June 02, 2011 12:23 PM
To: CENWO-EOC NWO; Williamson, Eileen L NWO; Farhat, Jody S NWD02; [redacted] HQ02; [redacted] HQ02; [redacted] HQ02; [redacted] HQ02; [redacted] LRH; [redacted] LRH; [redacted] MVM
Cc: [redacted] NWO; [redacted] NWD02; Farhat, Jody S NWD02; [redacted] NWD02; [redacted] NWD02; [redacted] NWD-OMAHA; [redacted] NWD02; [redacted] NWD02; [redacted] NWD02; [redacted] NWD02; [redacted] NWO; [redacted] RMC; [redacted] NWD02; [redacted] NWD; [redacted] MVD
Subject: Missouri River Basin Water Management Division Situation Report of 6-2-11 (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

[redacted]

Today's NWD Water Management situation report is attached.

[redacted]
Missouri Basin Water Managment Division
Northwestern Division
Corps of Engineers
[redacted]
[redacted]@usace.army.mil

Classification: UNCLASSIFIED
Caveats: NONE

Classification: UNCLASSIFIED
Caveats: NONE

[redacted] NWO

From: [redacted] NWO
Sent: Thursday, June 02, 2011 2:40 PM
To: Quinn, Kevin R NWO
Cc: Oldham, Margaret NWO; Farmer, Monique L NWO; [redacted] NWO; [redacted] NWD02; Farhat, Jody S NWD02; [redacted] NWO; [redacted] NWO; [redacted] NWO; [redacted] NWO; [redacted] NWO; [redacted] NWD02
Subject: Lake Audubon Press Release
Attachments: Audubon Press Release June 2.docx

Kevin,

Here is final draft of press releases for Lake Audubon.

Thanks,

[redacted]
Hydraulic Engineer
Water Control & Water Quality Section
[redacted] (office)
[redacted] (cell)

Corps of Engineers announces Lake Audubon pool levels will be held at 1850 until further notice.

Omaha, Neb. — Officials with the U.S. Army Corps of Engineers announced today that until further notice Lake Audubon levels will be held at a level of approximately 1850 feet above mean sea level (msl) as part of flood control regulation at Garrison Reservoir (Lake Sakakawea) . Additional storage in Lake Audubon may be utilized in mid to late June when mountain snowmelt runoff flows into Garrison Reservoir.

Lake Audubon has been continuing to rise at a rate of approximately 0.5 feet per day and at noon on June 2 was at a level of approximately 1849.4 feet msl. Pumping rates into Lake Audubon were reduced on June 2 so the rate of rise will be reduced to approximately 0.2 feet per day.

Over the next several weeks additional updates will be provided regarding planned pool levels in Lake Audubon. Landowners and residents along Lake Audubon should continue to be prepared for pool levels in Lake Audubon as high as 1854, if additional storage into Lake Audubon is necessary.

Lake Audubon is a sub-impoundment of Garrison reservoir, located 8 miles northeast of Riverdale, N.D. Impounded by the Snake Creek Embankment, Lake Audubon was created in 1954 with the relocation of U.S. Highway 83 and a railroad across the Snake Creek Arm of Lake Sakakawea. The lake also provides fish and wildlife enhancement, and diversion of water for irrigation.

The Corps is coordinating with the Bureau of Reclamation, U.S. Fish and Wildlife Service, North Dakota Game and Fish Department, North Dakota State Water Commission, and the Garrison Diversion Conservancy District concerning the impacts of increased Lake Audubon pool levels.

Please follow us on Facebook (www.facebook.com/OmahaUSACE) and Twitter (www.twitter.com/OmahaUSACE) for the latest updates regarding our flood response operations. You can also find flood inundation maps and local emergency management contact information on our social media sites as well as our district Web site at http://www.nwo.usace.army.mil.

View daily and forecasted reservoir and river information on the Water Management section of the Northwestern Division homepage at: http://www.nwd-mr.usace.army.mil/rcc.

[redacted] NWO

From: [redacted] NWO
Sent: Thursday, June 02, 2011 2:23 PM
To: CENWO-EOC NWO; Williamson, Eileen L NWO; Farhat, Jody S NWD02; [redacted] HQ02; [redacted] HQ02; [redacted] HQ02; [redacted] HQ02; [redacted] LRH; [redacted] LRH; [redacted] MVM
Cc: [redacted] NWO; [redacted] NWD02; Farhat, Jody S NWD02; [redacted] NWD02; [redacted] NWD02; [redacted] NWD-OMAHA; [redacted] NWD02; [redacted] NWD02; [redacted] NWD02; [redacted] NWD02; [redacted] NWD02; [redacted] NWD02; [redacted] NWO; [redacted] RMC; [redacted] NWD02; [redacted] NWD; [redacted] E MVD
Subject: Missouri River Basin Water Management Division Situation Report of 6-2-11 (UNCLASSIFIED)
Attachments: Missouri River Basin Water Management Situation Report 6-2-11.docx

Classification: UNCLASSIFIED
Caveats: NONE

[redacted],

Today's NWD Water Management situation report is attached.

[redacted]
Missouri Basin Water Managment Division
Northwestern Division
Corps of Engineers
[redacted]
[redacted]@usace.army.mil

Classification: UNCLASSIFIED
Caveats: NONE

Missouri River Basin Water Management Situation Report – 6-2-11

Reservoir Conditions

The upper three reservoirs of the Missouri River Mainstem Reservoir System provide the bulk of the storage of water. All three are in their exclusive flood control zones, nearing their spillway crests. Table 1 summarizes the situation as of 0000 hours this morning. More details on the reservoirs can be found on the daily bulletin prepared by the Missouri River Basin Water Management Division at: http://www.nwd-mr.usace.army.mil/rcc/reports/showrep.cgi?4BULL0MR1.

Table 1. Key Reservoir Data (through 0000 hrs 6/2/11)

Reservoir	Inflow kcfs	Release kcfs	Top of Spillway Gates feet msl	Current Level feet msl	24-hr Change feet
Fort Peck	73.0	9.6	2250	2249.4	0.5
Garrison	131.0	91.3	1854	1853.4	0.1
Oahe	101.0	86.1	1620	1618.9	0.1
Big Bend	82.0	69.5	1423	1419.5	0.5
Fort Randall	86.0	79.9	1375	1360.0	0.1
Gavins Point	81.0	80.0	1210	1206.5	0.0

Based on the current level data on the upper three reservoirs, the amount of remaining storage is diminishing. One way to characterize this factor is to compute the percent of the exclusive flood control zone that is remaining to store water before water passes uncontrolled over the spillway gates. The lower three reservoirs have much less capability to store the inflows that are coming into the Missouri River Mainstem Reservoir System, with Fort Randall Reservoir having the greater amount. As of today, the stored water has not yet entered the exclusive flood control zones of the three smaller reservoirs; therefore, 100 percent of their exclusive flood control storage remains available. Table 2 summarizes the storage volumes of all six System reservoirs, with the last column listing the amount of exclusive flood control storage that remains as of today. Spillways are now being used at four of the reservoirs. The reservoirs currently spilling water are Gavins Point, Fort Randall, Garrison, and Fort Peck (0800 today). Because the gates are now open at these reservoirs, the percent of exclusive flood control storage left can drop to a negative number (reservoir surcharge over the top of exclusive). As the releases are ramped up from a fifth reservoir, Big Bend, its spillway gates will open on Friday, June 3, shortly before 8 a.m. This will be the first time in the history of this project that the spillway gates have been opened to pass floodwaters.

Table 2. Reservoir Storage Data (through 0000 hrs 6/2/11)

Reservoir	Current	Total	Remaining	Exclusive	% Excl Left
	kAF	kAF	kAF	kAF	
Fort Peck	18,317	18,463	146	971	15
Garrison	23,641	23,821	180	1,489	12
Oahe	22,753	23,137	384	1,102	35
Big Bend	1,598	1,798	200	60	100
Fort Randall	3,970	5,418	1,448	985	100
Gavins Point	355	450	95	57	100

Releases from the five of the six reservoirs are currently exceeding records prior to 2011. The sixth, Fort Peck Reservoir, will exceed its record release within the next week. Table 3 provides release data for all six reservoirs to provide some perspective on the changes that will be happening over the next 2 weeks. A full listing of the data through mid-July is available at: http://www.nwd-mr.usace.army.mil/rcc/reports/twout.html.

Table 3. Reservoir Release Comparisons (through 0000 hours 6/2/11)

Reservoir	Yesterday	Forecast Today	7 days out 9 June	14 days out 16 June	Pre-2011 Record
	kcfs	kcfs	kcfs	kcfs	kcfs
Fort Peck	9.6	15.0	40	50	35
Garrison	91.3	110.0	130	145	65
Oahe	86.1	85.0	150	150	59
Big Bend	69.5	85.0	150	150	74
Fort Randall	79.9	83.0	143	148	67
Gavins Point	80.0	85.0	140	150	70

River Conditions

The cities of Bismarck, ND and Pierre, SD are preparing for flood stages on the Missouri River resulting primarily from the releases from Garrison and Oahe Dams, respectively. Many communities along the lower Missouri River are currently experiencing Missouri River flows that are above flood stage by several feet. The flood stages currently being experienced will be exceeded as Missouri River Mainstem Reservoir System releases increase over the next few weeks to pass the anticipated inflows from mountain snowpack runoff and heavy rains in the Missouri River basin. Table 4 summarizes the current conditions as of 0600 hours this morning and the Corps' current forecast for crest stages.

Table 4. Missouri River Stage Data for 6/2/11 at 0600 CDT

Location	Flood Stage	Current Stage	Forecast Crest Stage	Date of Crest Stage
Bismarck, ND	16	16.1	20-21	mid-Jun
Pierre, SD	15	15.3	18.7	mid-Jun
Sioux City, IA	30	28.2	35-37	mid-Jun thru July
Decatur, NE	35	33.5	40-42	mid-Jun thru July
Omaha, NE	29	29.1	34-36	mid-Jun thru July
Nebraska City, NE	18	22.9	27-28+	mid-Jun thru July
St. Joseph, MO	17	21.7	27-32	mid-Jun thru July
Kansas City, MO	32	25.0	30-39	mid-Jun thru July
Waverly, MO	20	23.3	27-31	mid-Jun thru July
Boonville, MO	21	22.2	27-33	mid-Jun thru July
Hermann, MO	21	22.5	27-33	mid-Jun thru July

Information on Current Mountain Snowpack and Forecasted Rainfall

Releases from the System reservoirs are based on snowpack and rainfall forecasts in the Missouri River basin. An updated snowfall forecast was not prepared today; however, the Hydrologic Prediction Center (HPC) of NOAA prepares a rainfall forecast daily for up to the next 5 days, with an accumulated figure also presented on its website. Figure 1 is the accumulated 5-day rainfall forecast released today by HPC, and Figure 2 is today's mountain snowpack update compiled by the Corps.

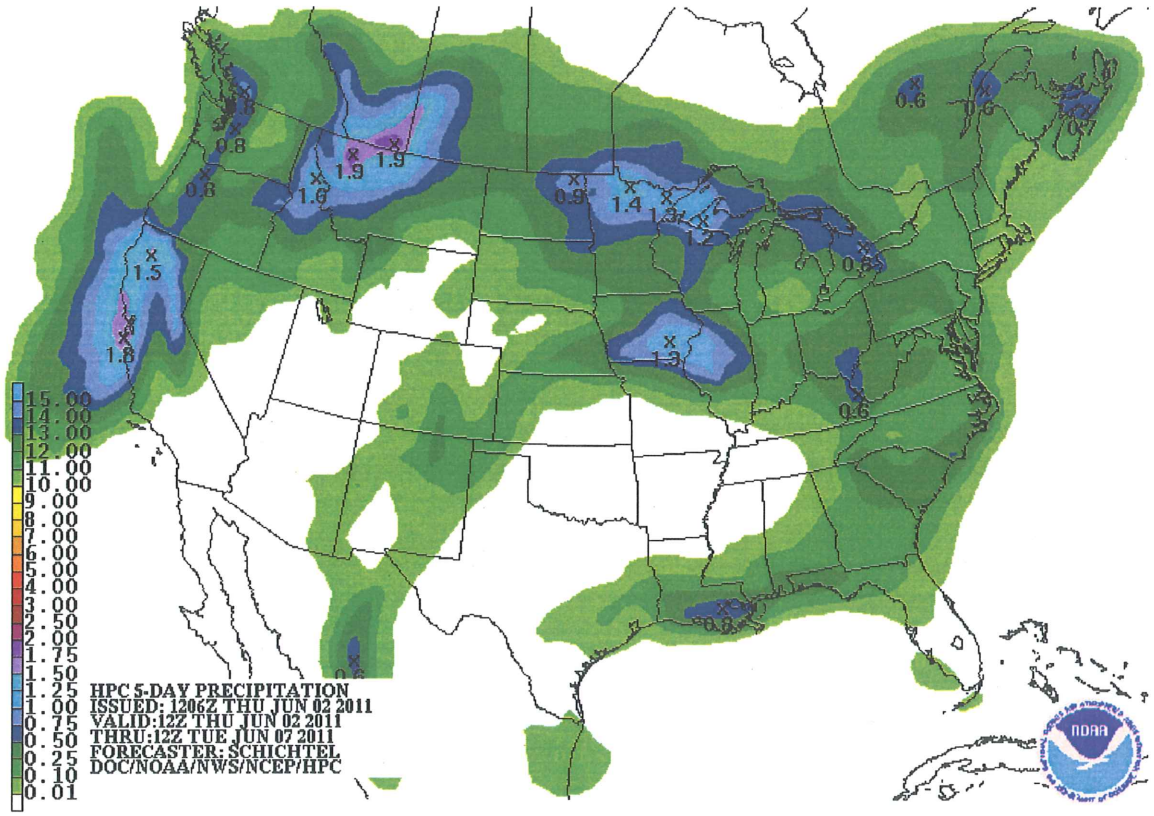


Figure 1. 5-day total QPF ending 0700 Tuesday, June 7, 2011.

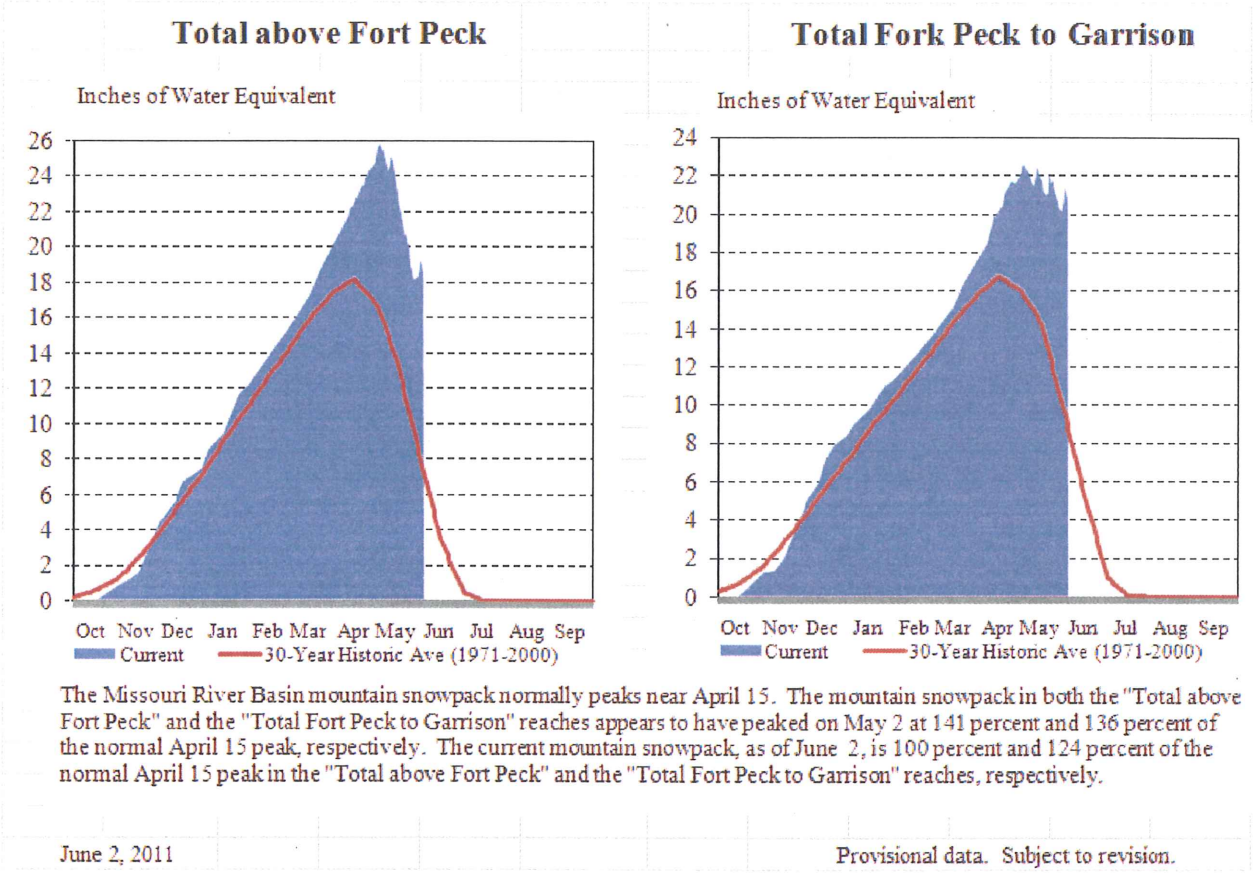


Figure 2. Missouri River basin mountain snowpack water content summary, 2010-2011 – June 2, 2011.

Actions Underway to Prepare for the Releases

Actions continue to prepare for the already high flows on the Missouri River and those that will result from the increased releases from the Missouri River Mainstem System reservoirs. The Omaha District continues to work with the cities of Bismarck/Mandan, ND and Pierre/Ft. Pierre, SD to construct levees to limit flood impacts to those cities. Floodplain evacuations have been ongoing for many lower-lying areas along the lower Missouri River. Floodplain inundation maps have been posted by the Omaha District to identify the areas of potential flooding for the emergency managers and the public. Overtopping of levees information is also available from both districts.

The Kansas City District had to reduce or stop releases from the flood control zones of its Kansas River basin reservoirs today. The releases were up to evacuate these zones before the forecasted 150-kcfs releases begin from Gavins Point Dam. The cutbacks were required as a result of heavy rains last night in the tributary area to the Kansas River, with many sites reporting 1 to 8 inches of rain. Figure 3 shows the distribution of the observed rainfall.

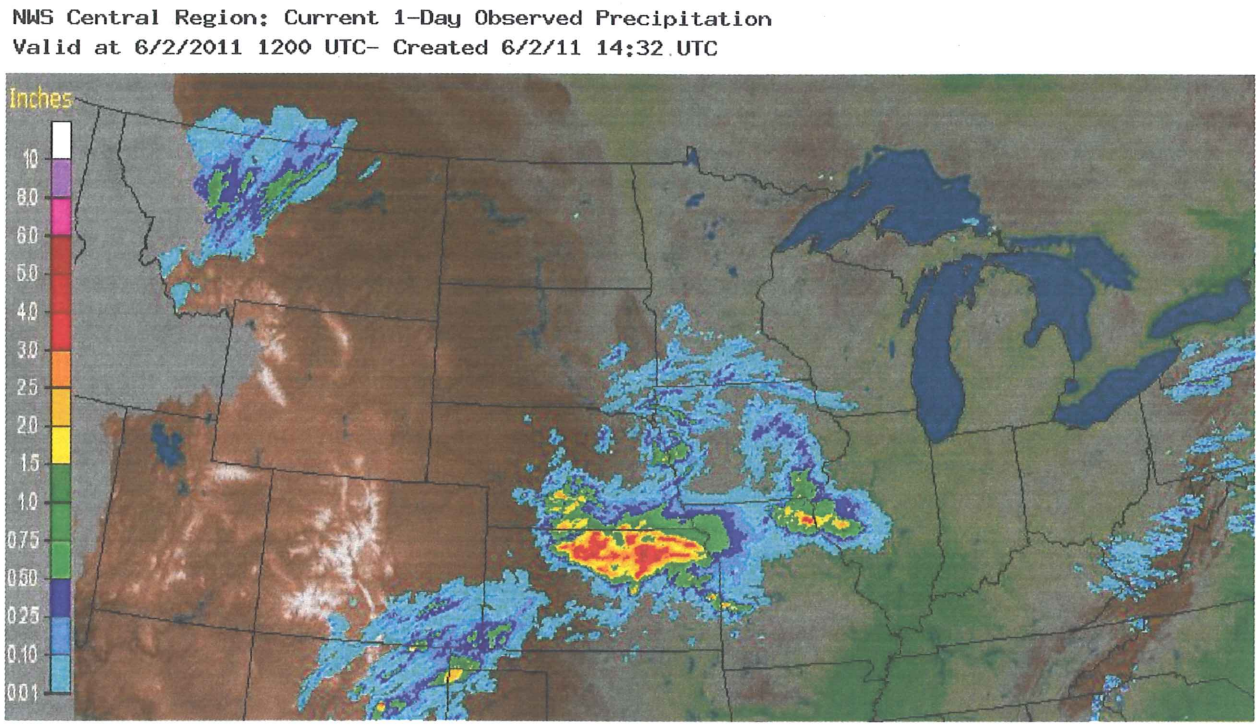


Figure 3. Observed rainfall that affected the Kansas River inflows on 6-2-11.

The Lake Audubon pool continues to rise due to inflows from Garrison Reservoir. The current level is at 1849.5 ft msl, and the pumps will be shut off today. The rate of rise will decrease as the Lake Audubon level approaches the 1850 ft msl level. A decision will be made on a final target level based on several factors.

[redacted] NWO

From: [redacted] NWO
Sent: Thursday, June 02, 2011 1:09 PM
To: [redacted] NWO; 'terry_ellsworth@fws.gov'; 'mmarohl@usbr.gov'; 'todd_frerichs@fws.gov'; 'jalee@nd.gov'; 'jkelsch@nd.gov'; 'glevi@nd.gov'; 'kkovar@daktel.com'; 'Dyke, Steve R.'; 'davek@daktel.com'; 'ggere@usbr.gov'; 'dfewless@state.nd.us'; 'kgoff@nd.gov'; 'lloyd_jones@fws.gov'; 'rijohnson@nd.gov'; 'rfwagner@nd.gov'; 'lrerickson@nd.gov'; 'tdunnigan@KFYRTV.com'; 'pjhuges4 @bis.midco.net'
Cc: 'DKrogstad@usbr.gov'; 'Aycock, Gordon L'; 'Erger, Patrick J'; [redacted] NWO; [redacted] NWD02; Farhat, Jody S NWD02; [redacted] NWO; [redacted] NWO; [redacted] NWO; [redacted] NWO; Bertino, John J Jr NWO; [redacted] NWD02; [redacted] NWO; [redacted] NWO; [redacted] NWO; [redacted] NWO; [redacted] NWO; [redacted] NWO; [redacted] NWO; [redacted] NWO; Schenk, Kathryn M NWO; [redacted] NWO; [redacted] NWO; [redacted] NWO; [redacted] NWO; [redacted] NWO; [redacted] NWO; [redacted]

[redacted] NWO

From: [redacted] NWD02
Sent: Thursday, June 02, 2011 12:56 PM
To: Farhat, Jody S NWD02; [redacted] NWD02; [redacted] NWD02; [redacted] NWD02; [redacted] NWD02; [redacted] NWD02; [redacted] NWD02
Subject: FW: Bismarck discharge measurement for June 2

FYI

Date	Gage Height (Feet)	USGS Q (CFS)	Corps Q (CFS)	Difference USGS & Corps (CFS)	(%)
6/2/2011	16.16	95,000	90,800	-4200	4.63%
6/2/2011	16.19	95,500	91,100	-4400	4.83%

-----Original Message-----
From: Steven M Robinson [mailto:smrobins@usgs.gov]
Sent: Thursday, June 02, 2011 12:41 PM
To: [redacted] NWD02; bengelhardt@nd.gov; [redacted] NWO; [redacted] NWO; [redacted] NWO; kcasteel@nd.gov; [redacted] NWO; [redacted] NWD02; [redacted] R NWD02; [redacted] NWD02; [redacted] NWO; [redacted] NWO; tom.gurss@noaa.gov; Allen.Schlag@noaa.gov; tsando@nd.gov; [redacted] NWO; mgunsch@houstoneng.com; tfay@nd.gov; david.sprynczynatyk@us.army.mil; kdemke@nd.gov; gwilz@nd.gov; bdarr@nd.gov; bpfeifer@nd.gov; smrobins@usgs.gov
Subject: Bismarck discharge measurement for June 2

Two discharge measurements were made on the Missouri River at Bismarck today

Measurement 1 @ 0942, Q=95,000, GH=16.16, which yields a +.67 shift to new rating 16.0

Measurement 2 @ 1018, Q = 95,500, GH=16.19, which yields a +.67 ft shift to new rating 16.0

The mean channel velocity in the section was around 5.0 fps

The recorded maximum velocity was around 11.3 fps

The maximum depth was around 23.5 ft.

Both measurements will be loaded into the USGS database and the USGS webpage will be updated accordingly.

****
Steven M. Robinson
Chief, Hydrologic Records and Information Section North Dakota Water Science Center U. S. Geological Survey office 701-250-7404 cell 701-220-6309
****

[redacted] NWO

From: [redacted] NWD02
Sent: Thursday, June 02, 2011 12:49 PM
To: Farhat, Jody S NWD02; [redacted] NWD02
Subject: FW: Bismarck discharge measurement for June 2 (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

FYSA. We've gone from -1.30' shift to +0.67 shift in a span of a couple weeks.

[redacted].
Reservoir Regulation Team Lead
Missouri River Basin Water Management,
Northwestern Division, USACE
[redacted]
[redacted] (fax)

-----Original Message-----
From: Steven M Robinson [mailto:smrobins@usgs.gov]
Sent: Thursday, June 02, 2011 12:41 PM
To: [redacted] NWD02; bengelhardt@nd.gov; [redacted] NWO; [redacted] NWO; [redacted] NWO; kcasteel@nd.gov; [redacted] NWO; [redacted] NWD02; [redacted] R NWD02; [redacted] NWD02; [redacted] NWO; [redacted] NWO; tom.gurss@noaa.gov; Allen.Schlag@noaa.gov; tsando@nd.gov; [redacted] NWO; mgunsch@houstoneng.com; tfay@nd.gov; david.sprynczynatyk@us.army.mil; kdemke@nd.gov; gwilz@nd.gov; bdarr@nd.gov; bpfeifer@nd.gov; smrobins@usgs.gov
Subject: Bismarck discharge measurement for June 2

Two discharge measurements were made on the Missouri River at Bismarck today

Measurement 1 @ 0942, Q=95,000, GH=16.16, which yields a +.67 shift to new rating 16.0

Measurement 2 @ 1018, Q = 95,500, GH=16.19, which yields a +.67 ft shift to new rating 16.0

The mean channel velocity in the section was around 5.0 fps

The recorded maximum velocity was around 11.3 fps

The maximum depth was around 23.5 ft.

Both measurements will be loaded into the USGS database and the USGS webpage will be updated accordingly.

****
Steven M. Robinson
Chief, Hydrologic Records and Information Section North Dakota Water Science Center U. S. Geological Survey office 701-250-7404 cell 701-220-6309
****

Classification: UNCLASSIFIED
Caveats: NONE

[redacted] NWO

From: [redacted] NWD02
Sent: Thursday, June 02, 2011 12:48 PM
To: Farhat, Jody S NWD02; [redacted] NWD02
Subject: FW: Lake Audubon Reservoir Regulation Order - 2 June 2011 (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

FYSA.

[redacted].
Reservoir Regulation Team Lead
Missouri River Basin Water Management,
Northwestern Division, USACE
[redacted]
[redacted] (fax)

-----Original Message-----
From: [redacted] NWO
Sent: Thursday, June 02, 2011 12:12 PM
To: [redacted] NWO; 'Krogstad, Duane E'; Marohl, Michael K; [redacted] NWD02
Cc: [redacted] E NWO
Subject: Lake Audubon Reservoir Regulation Order - 2 June 2011 (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

SUBJECT: Lake Audubon Reservoir Regulation Order LAUD-11-02

1. This memo confirms oral instructions that were given to you by Tim Temeyer of my staff regarding the regulation of releases from Garrison Reservoir into Lake Audubon.

2. Background: Pumping from Garrison Reservoir into Lake Audubon is being conducted in order to take advantage of Lake Audubon storage as part of Garrison Reservoir flood control operations. Lake Audubon is rising at a rate of approximately 0.5 feet per day and is currently at a level of approximately 1849.4 feet msl. With current pumping and gate opening Lake Audubon is forecasted to reach a pool level of 1850.0 on June 3. Garrison Reservoir is currently at a level of 1853.6 and is forecasted to reach a pool level of 1854.6 on approximately June 6. It has been decided to hold Lake Audubon levels at 1850, then possibly use additional storage in mid to late June when mountain snowmelt runoff occurs into Garrison Reservoir.

3. At approximately 1400 hours on Thursday, June 2, close gate in control structure to fully closed position. Terminate pumping from one pump station. With remaining pump in operation, flow into Lake Audubon should be approximately 2,000 cfs. We will provide instruction on further pumping operations later today.

4. The release order has been coordinated with members of the Lake Audubon Oversight Committee which includes representatives from the US Army Corps of Engineers, the US Bureau of Reclamation, the US fish and Wildlife Service, the North Dakota (ND) Department of Game and Fish, the ND State Water Commission, and the Garrison Diversion Conservancy District.

5. Please contact me ([redacted]) or [redacted] ([redacted]) if you have any questions.

[redacted], P.E.
Chief, Water Control and Water Quality Section Hydrologic Engineering Branch Engineering Division U.S. Army Corps of Engineers, Omaha District

Classification: UNCLASSIFIED
Caveats: NONE

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Caveats: NONE

[redacted] NWO

From: [redacted] NWD
Sent: Thursday, June 02, 2011 12:31 PM
To: Blechinger, Erik T NWO; Farhat, Jody S NWD02
Cc: [redacted] CDR; [redacted] LCDR; Teschendorf, Steven C; [redacted] USCG
Subject: Coast Guard EOC Support Offer (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

Erik and Jody,

Coast Guard Sector Upper Mississippi River, St Louis is asking a support offer question. Please respond to Justin Coder.

John

-----Original Message-----
From: Justin.S.Coder@uscg.mil [mailto:Justin.S.Coder@uscg.mil]
Sent: Thursday, June 02, 2011 12:07 PM
To: [redacted] NWD
Cc: [redacted] LCDR; [redacted] LCDR; Teschendorf, Steven C
Subject: RE: MO RIV Levees Overtop Projections (UNCLASSIFIED)

[redacted]

Has the USACE established an EOC or similar command post in the Omaha District, and if so do you see a need for a CG Liaison to be present? What would the appropriate rank be for that Liaison? I ask because there is a lot of attention from DHS on the river stages and we are fielding a lot of questions as to the corps and CG course of action. In addition I could see the benefit with having a CG rep in the case of there being any request for SAR or LE involvement.
Let me know what you and your chain think about it.

Scott

-----Original Message-----
From: [redacted]@usace.army.mil [mailto:[redacted]@usace.army.mil]
Sent: Wednesday, June 01, 2011 4:25 PM
To: BMCM Dan Kilkeary; Smith, Dean C BMCM; Coder, Justin BOSN2; Hudson, Steve CAPT; Morgan, Jeffrey CDR; Stoermer, Scott LCDR; [redacted] NWO; [redacted] NWD; [redacted] MVS; [redacted] NWK; [redacted] NWK; Farhat, Jody S NWD02; Goyal, Des R NWK; [redacted] NWD02; [redacted] MVD; [redacted] HQ02; [redacted] NWK; [redacted] NWD; [redacted] NWO; [redacted] NWK; [redacted] NWD; Schenk, Kathryn M NWO; [redacted] NWD02; [redacted] MVS; [redacted] NWD02; [redacted] NWO; [redacted] NWO; [redacted] NWO; [redacted] NWO; Bill Beacom; Bill Jackson; Dave Dewey; David Smith; Doug Clark; Doug Halbert; John Drew; Kevin Holcer; Lester Cruse 2; Cruse, Lester External Stakeholder; Lynn Muench; Mike Olson; Paul Dolak; Randy Asbury-CRP; Ray Bohlken; Roger Harris; Steve Engemann; Steve Engemann WK; Tom More; Wells, Mike MVS External Stakeholder
Subject: MO RIV Levees Overtop Projections (UNCLASSIFIED)

Classification: UNCLASSIFIED

Caveats: NONE

WAP Team:

During our Waterways Action Plan call Lester Cruse asked for the river mile locations of the Federal Levees that are projected to be overtopped.

Levee Overtop Projections link here:

http://www.nwk.usace.army.mil/Flood/Flood2011.cfm?cat=Levee

The website includes both Non-Federal And Federal Levees. Attached is the projections for the Federal Levees.

Federal Levee projected to be overtopped with river mile locations

Unit R-500 (River Mile 484.5-480.0)
Unit L-488 (River Mile 476.0-465.0)
Unit L-246 (River Mile 250.0-238.8)

John LaRandeau
402-996-3853

Classification: UNCLASSIFIED
Caveats: NONE

Classification: UNCLASSIFIED
Caveats: NONE

[redacted] NWO

From: [redacted] NWD
Sent: Thursday, June 02, 2011 12:27 PM
To: [redacted] HQ02; [redacted] HQ
Cc: [redacted] HQ; [redacted] HQ02; [redacted] HQ; Ruch, Robert J COL NWO; Farhat, Jody S NWD02; McMahon, John R BG NWD
Subject: RE: Phone call with SEN Thune and meeting with REP Noem (UNCLASSIFIED)
Attachments: final_Col Ruch Update for News Conference_June 1.docx; 2011 Missouri River Flood Talking Points 1 Jun 2011.docx; Points for MG Grisoli call with Sen Thune 2 June 2011.docx

Classification: UNCLASSIFIED
Caveats: NONE

[redacted] we are putting together a slide briefing for T2, first cut of which we should have by our COB today.

Meantime for G2 call with Thune, I've attached Jody's talking points from yesterday re the reservoir operations, and Col Ruch's talking points re the flood fight assistance work underway. Third file is summary of key points.

VR
[redacted]

-----Original Message-----
From: [redacted] HQ02
Sent: Thursday, June 02, 2011 9:04 AM
To: [redacted] HQ
Cc: [redacted] NWD; [redacted] HQ; [redacted] HQ02; [redacted] HQ
Subject: Phone call with SEN Thune and meeting with REP Noem (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

[redacted]---

For today - phone call with SEN Thune and MG Grisoli needs to take place at 1600 (Eastern). Know that you all are in a calendar brief then, but the Senator was in a public meeting at 1500 our time.

They are sending phone numbers in.

[redacted] --- any updates that would be helpful for MG Grisoli need to be to me by about 1500 eastern.

2nd issue - REP Noem (SD) would also like to meet with MG Grisoli to discuss the SD flooding - she can't piggyback on the meeting next week with MG Temple, because she will be in the state. She would like to meet with him on Monday, 13 June, at 1715 in her DC office.

Can you confirm that that time works?

Thanks! [redacted]

[redacted]

Chief, Future Directions Branch/Civil Works

[redacted] (desk)

[redacted] (cell)

[redacted] (fax)

Classification: UNCLASSIFIED
Caveats: NONE

Classification: UNCLASSIFIED
Caveats: NONE

Col Ruch – Update for News Conference – Wed 1 June

Good evening. My name is Col. Bob Ruch, the commander of the Omaha District. Thank you for participating in this stakeholder call. Again tonight, I'm focused on sharing the new information with you.

Protecting lives is our number-one priority. I will continue to remind the public to remain vigilant of the safety risks associated with flooding events.

We are committed to this flood fight and will do all in our power and authority to assist communities and stand by them until this event is over as well as through recovery.

I want to put this in historical perspective, with some statistics from May,

- The inflow above Sioux City was 10.5 MAF. The previous record May inflow was 7.2 MAF (1995)

- The inflow into Fort Peck was 2.9 MAF. The previous May record set at Fort Peck was 2.6 MAF (1975)

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- The monthly inflow of 10.5 MAF is the 2nd highest monthly total from 1898-2011, exceeded only in April 1952 (13.2 MAF)

With that said, I want to remind you of the inundation mapping and other useful information we've posted to our Web Page and Facebook. We are offering these tools to help communities and citizens prepare for the high water.

Across the basin, the corps has supplied 7 million sandbags, 6 pumps, 1,400 rolls of poly and 28,840 linear feet of Hesco bastions. An additional 1.5 million sandbags are being loaded onto trucks now. We are getting supplies from Morgan City, Louisiana and other locations across the country.

Many U.S. Army Corps of Engineers personnel including hydrologists, geologists, surveyors, hydraulic engineers, contracting officers, and many others are set up at strategic areas along the river providing support to communities. And, more are on the way as we are bringing additional personnel from other parts of the country. We are also working in coordination with our federal, state, county and local partners, including the National Weather Service who is working in our office with the team.

MONTANA – Our Fort Peck Project Office is assisting Big Horn county with their request for sandbags and has issued rolls of poly to the Fort Peck Tribe . 24 hour surveillance began today at Ft. Peck Dam.

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Shortly before 8 a.m. today the spillway gates at Garrison Dam were opened to pass floodwaters. Seven of the dam's 28 spillway gates were raised 1 foot to release an additional 7,500 cubic feet per second of floodwater from the reservoir. That brought the total releases from Garrison to 92,500 cfs.

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I must emphasize, the closing of the spillway gates has NO impact on the current release schedule, since the additional water is being released through the regulating tunnels which are next to the powerhouse outlet works on the west side of the dam. The regulating tunnels allow us to continue to meet the release schedule while the evaluation of the surface deterioration is completed. We expect that the spillway gates will be reopened soon.

At Bismarck and Mandan we are on schedule to move out releases as planned. At both sites, 100% completion of construction is anticipated for June 3rd.

Levees- Bismarck - 7.2 miles
Bismarck contracts are moving forward. All contracts have been awarded. The overall project is 85% complete.

Levees - Mandan - 2.8 miles
Mandan project is 15% complete.

--Our Tech Team, Contracting Team, and our Corps Tribal Liaison are on site working to assist the Standing Rock Sioux Tribe with their concerns. The team is exploring issues relating to erosion threatening critical infrastructure.

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In addition we've received a request from the State of Iowa for technical and direct assistance for many communities along the Missouri River Basin. We are currently coordinating meetings with several counties, Desoto Bend National Wildlife Refuge and Mid America Energy in Council Bluffs to address their needs.

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We've provided Elk Mountain, WY with 1350 Linear feet of 3' HESCOs and construction is ongoing.

We will be providing two teams to provide assistance for Fremont County (Lander & Wind River Reservation) and the North Platte Basin. One team left today.

***

In closing, I want to emphasize that I have total confidence in the structural integrity of our dams. This is what they were designed to do.

Again, I cannot emphasize enough that with these forecasts, we should be able to avoid the loss of life in these situations. We expect folks to take these forecasts seriously. Please listen to your local officials about evacuation procedures.

2011 Missouri River Flood Talking Points
Missouri River Water Management
1 June 2011

Background

- As a result of a series of extraordinary rain events over the past several weeks in eastern Montana, northern Wyoming and the western Dakotas virtually all of the reservoir storage we intended to utilize to manage the snowmelt runoff has been filled up
- Snowpack is well above historic levels and still climbing in some regions and has only just begun to melt in others

Releases

- Each day we update the reservoir forecast with new rain and snow runoff information
- When changes to the inflow forecasts occur, which they often do, it is necessary for us to make adjustments to the come-up schedules at the mainstem reservoirs to balance the impacts of changing conditions.
    - Also important to note is that changing conditions at any one of the mainstem dams will have a ripple effect on the other 5
- We will be updating our reservoir forecast daily and will be posting it on the web when it is complete, generally in the late afternoon. We encourage you to monitor the web site and participate in these daily calls to ensure you have the latest and best information available
- Planned and forecasted releases at the 6 dams based on the forecast we posted on the web this afternoon are as follows:
    - Fort Peck – today 10,000 cfs, increasing to 15,000 cfs tomorrow, 50,000 cfs peak no later than mid-June
    - Garrison – yesterday 85,000 cfs, increasing in 2 steps today to 100,000 cfs, and 110,000 kcfs tomorrow in 2 steps with an eventual peak of 150,000 cfs no later than mid-June
    - Oahe – today 85,000 cfs, holding 85,000 cfs tomorrow, begin ramping up on Saturday with an eventual peak release of 150,000 cfs next week
    - Big Bend– today 85,000 cfs, holding 85,000 cfs tomorrow, begin ramping up on Saturday with an eventual peak release of 150,000 cfs next week
    - Fort Randall – 81,000 cfs today, going to 83,000 cfs tomorrow, with an eventual peak of 150,000 cfs no later than mid-June
    - Gavins Point – 81,000 cfs today, going to 85,000 cfs tomorrow, with an eventual peak of 150,000 cfs no later than mid-June
- It is important to remember that actual releases are based on conditions on the ground, which are subject to change.
- Bottom line is, the sooner we can reach these maximum release rates, the less risk there is that we'll have to go higher
- Once we have evacuated some storage in the reservoir system, we will have more flexibility to respond to changing conditions

Summary

- Forecast is based on best available information at this time

- Peak releases of 150 kcfs are certain for lower 5 dams, and could reach that level sooner than current projections if conditions in the upper basin deteriorate and could potentially go higher

Previous Record Releases

- Fort Peck 35 kcfs in 1975
- Garrison 65 kcfs in 1975
- Oahe 59 kcfs in 1997
- Big Bend 74 kcfs in 1997
- Fort Randall 67 kcfs in 1997
- Gavins Point 70,000 cfs in 1997

Points for MG Grisoli call with Sen Thune 2 June 2011

Water management:

1) We have been following our operations procedures in the Master Manual;
2) What is anomalous this year is the record inflows to the upper reservoirs in May (see some data pasted below), coupled with very high snow pack, much of which snow water equivalent remains - i.e. inflow yet to come in Ft Peck and Garrison;
3) We have not been operating to control the Mississippi R. high flows (we have coordinated with LRD and MVD throughout the spring during their operation so they would know what was coming from Missouri system, but we do not have authority to operate the Missouri solely for Mississippi R purposes);
4) We have not made operational decisions that were driven by ESA (nesting least terns and piping plovers), rather, we have been operating for flood risk reduction.

Data on May inflows:
May 2011 inflow above Sioux City was 10.5 MAF; previous record May inflow was 7.2 MAF (1995)

May 2011 inflow into Fort Peck was 2.9 MAF; previous May FTPK record was 2.6 MAF (1975)

May 2011 inflow into Garrison was 4.4 MAF; previous May GARR record was 2.8 MAF (1978)

The May 2011 monthly inflow of 10.5 MAF is the 2nd highest monthly total from 1898-2011, exceeded only in April 1952 (13.2 MAF)

Comparing FTPK+GARR May inflows:
1952* = 1.8 + 4.9 = 6.7
1975 = 2.7 + 2.7 = 5.4
1978 = 1.8 = 2.8 = 4.6
1997 = 1.5 + 1.6 = 3.1
2011 = 2.9 + 4.4 = 7.3

*1952 record monthly flows occurred in (April) = 1.8 + 4.9 = 6.7

Data on snow water equivalent:
Ft Peck - crested at 136% of normal peak; currently 100% of normal peak

Garrision - crested at 141% of peak; currently 124% of normal peak

Flood fighting - here are points from attached TPs yesterday (1 June) from Col Ruch re South Dakota sites;

1) Construction continues on schedule at Pierre/Fort Pierre. Meeting the June 4 completion date at Pierre remains on target.

2) The north levee at Fort Pierre is at elevation 1434 at 75% of the length. Other areas are being worked and should reach elevation 1434 tomorrow before flows increase.

3) Our contracting team is onsite at Dakota Dunes. The contract will be awarded tonight.

[redacted] NWO

From: Oldham, Margaret NWO
Sent: Thursday, June 02, 2011 11:48 AM
To: [redacted] NWD; Blechinger, Erik T NWO; Farhat, Jody S NWD02
Subject: COL Ruch's Comments 6 p.m. Call, 1 June 11 (UNCLASSIFIED)
Attachments: final_Col Ruch Update for News Conference_June 1.docx

Classification: UNCLASSIFIED
Caveats: NONE

Attached comments are provided per your request.

VR

Maggie Oldham
Public Affairs Officer
Omaha District, USACE
Office: (402) 995-2416
BB: (402) 650-8154
margaret.e.oldham@usace.army.mil

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[redacted] NWO

From: [redacted] NWK
Sent: Thursday, June 02, 2011 11:28 AM
To: Farhat, Jody S NWD02; [redacted] NWK
Subject: RE: 2 Jun 1500hrs Daily CMT -- Brief of Joplin Tornado and Flood Fight (UNCLASSIFIED)

Jody,

We had a problem yesterday with dial-in numbers. Changes were not posting via calendar notices when changes were made. We are moving away from that system. We can relook this but for now will use e-mail method. The good news is that the numbers should not be changing.

Thanks.

[redacted]

-----Original Message-----
From: Farhat, Jody S NWD02
Sent: Thursday, June 02, 2011 11:00 AM
To: [redacted] NWK; [redacted] NWK
Subject: RE: 2 Jun 1500hrs Daily CMT -- Brief of Joplin Tornado and Flood Fight (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

Please send these as meeting notices so they get put on calendars. We are swamped with email as I'm sure you are.

-----Original Message-----
From: [redacted] NWK
Sent: Thursday, June 02, 2011 10:28 AM
To: [redacted] NWK; [redacted] NWK; DLL-NWK-CMT; West, Edward R; DLL-NWK-EOC-BC; [redacted] NWK; [redacted] NWK; [redacted] NWK; Farhat, Jody S NWD02; [redacted] NWO; [redacted] NWK; [redacted] NWK; [redacted] NWK; [redacted] NWK; [redacted] NWK; [redacted] NWK; [redacted] NWK; [redacted] NWK; [redacted] NWK; [redacted] NWK; [redacted] NWK; [redacted] NWK; [redacted] NWK; [redacted] NWK; [redacted] NWK; [redacted] NWK; [redacted] NWK; [redacted] NWK; [redacted] NWK; Blechinger, Erik T NWO; [redacted] NWD; Tipton, Robert A Col NWD; CENWO-EOC NWO
Cc: Hofmann, Anthony J COL NWK; [redacted] NWK; [redacted] NWK; [redacted] NWK; [redacted] NWK; [redacted] NWK; [redacted] NWP; Burns, Steven R; [redacted] NWK; [redacted] NWK; [redacted] NWK; [redacted] NWK; [redacted] NWK; [redacted] NWK; [redacted] NWK; [redacted] NWK; [redacted] NWK; [redacted] NWK; [redacted] NWK; [redacted] NWK; [redacted] NWK; [redacted] NWK; [redacted] NWK; [redacted] NWK; [redacted] NWK; [redacted] NWK; [redacted] NWK

Code: [redacted]
You will be a Participant.

Call-In Number
[redacted]
Access code: [redacted]
Security Code: [redacted]

Classification: UNCLASSIFIED
Caveats: NONE

[redacted]NWO

From: Oldham, Margaret NWO
Sent: Thursday, June 02, 2011 11:19 AM
To: DLL-CENWO-ALL Employees; DLL-CENWD Zorinsky-Floor 3
Subject: Corps Committed to Flood Fight (UNCLASSIFIED)
Attachments: NRGenMcMahon OP ED Article 2011.docx

Classification: UNCLASSIFIED
Caveats: NONE

The attached news release is provided for your situational awareness. This is a letter from NWD Commander Brig. Gen. John McMahon expressing our commitment to the flood fight.

VR

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Classification: UNCLASSIFIED
Caveats: NONE

BUILDING STRONG®

U.S. ARMY CORPS OF ENGINEERS

NEWS RELEASE

For Immediate Release: June 27, 2011

Contact: Kevin R. Quinn 402-995-2419
kevin.r.quinn@usace.army.mil

Brigadier General McMahon: Corps committed to flood fight

By Brig. Gen. John McMahon

Omaha, Neb. – Prolonged heavy rain, coupled with melting record snowpack, is causing flows and reservoir releases of historic proportions and flooding along the Missouri River and many of its tributaries throughout Montana, North Dakota, South Dakota, Nebraska, Iowa, Kansas and Missouri. Severe personal and financial losses to individuals, families and businesses are painful and regrettable. Unfortunately, conditions are worsening in the near term as there is no relief from precipitation in the basin. Without higher releases, the integrity of the system would be jeopardized and loss of regulated flows likely. More water is coming.

To deal with the onslaught of water, the Corps is stepping up reservoir releases and sending record amounts of water downstream. Reservoir releases on the Missouri have changed several times in just the past few weeks, due to changing daily forecasts and increasing precipitation in Wyoming, Montana, North Dakota and South Dakota. The Corps will soon be releasing 150,000 cubic feet per second from five of our six main stem dams, which will result in much higher levels on the river downstream, on an earlier time line than originally forecast.

The Army Corps of Engineers takes its flood risk management and water management responsibilities very seriously. The Corps is doing everything within its ability to manage the flows from its reservoirs to reduce risk from current and future high water events throughout the system.

The Corps has dispatched teams of experts, awarded multiple emergency construction contracts and issued several million sandbags and numerous pumps throughout the basin to support local flood fighting efforts. Our daily emphasis on dam safety ensures that the dams will maintain their integrity through this challenging weather event. Without the reservoirs, downstream flows and flood damages in coming weeks would be much higher.

We are continuously monitoring the situation on the Missouri River and its tributaries as well as weather forecasts to make timely adjustments to the planned releases in accordance with our statutory responsibilities. Forecasts continue to show significant rainfall and snow melt throughout the basin. Our operations will continue to take the best available information into account and make adjustments to system flows accordingly. We are committed to sharing information in a timely manner and to conducting our operations transparently.

This will be a long, sometimes frustrating and intense effort as the situation evolves and as we work together to avoid loss of life, minimize damages and help communities deal with the situation. The Corps is committed to doing its best in close collaboration with city, county, state and federal agencies as well as Congressional representatives and others as we address this daunting challenge.

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Brig. General McMahon is the commander of the Northwestern Division of the Army Corps of Engineers. He oversees the operation of dams and reservoirs throughout the Missouri River basin.

[redacted] NWO

From: Williamson, Eileen L NWO
Sent: Thursday, June 02, 2011 10:43 AM
To: Williamson, Eileen L NWO; DLL-CENWO-EOC CMT-ALL; MRJIC
Subject: RE: June 2, 2011 - Riverwatch - Flood Fight Storyboard Daily Update (CMT) (UNCLASSIFIED)
Attachments: Flood_Fight_Storyboard_2JUNa.docx

Classification: UNCLASSIFIED
Caveats: NONE

Wrong File was attached.
Attached is the CORRECT file.

Attached is the Riverwatch Daily Update (The last page and the last section about equipment and personnel is FOUO

Missouri River Mainstem Reservoir Bulletin (Updated 2 Jun; 0845 CDT)

Fort Peck (In operation since 1940)

Midnight Elevation

* 2249.4 ft msl

* 24-hr Change (+0.5 ft)

Daily Avg. Inflow

* 73,000 cfs (1 Jun)

* 78,000 cfs (31 May)

Daily Avg. Release

* 9,600 cfs (1 Jun)

* 9,700 cfs (31 May)

Annual Flood Ctrl & Multi-Use Zone (Elevation)

* 2234 ft msl - 2246 ft msl

Exclusive Flood Ctrl Zone (Elevation)

* 2246 ft msl - 2250 ft msl

Top of Spillway Gates

* 2250 ft msl

Planned Scheduled Releases (Subject to Change)

* Peak release will be 50,000 cfs by no later than mid June.

* Reservoir will use several feet of surcharge storage above the exclusive flood control pool as spillway gates are raised.

Record Flow (Year)

* 35,000 cfs (1975)

Projected Record Flow (Date)

* 50,000 cfs (Mid June)

Garrison (In operation since 1955)

Midnight Elevation

* 1853.4 ft msl

* 24-hr Change (+0.1 ft)

Daily Avg. Inflow

* 131,000 cfs (1 Jun)

* 137,000 cfs (31 May)

Daily Avg. Release

* 91,300 cfs (1 Jun)

* 85,500 cfs (31 May)

Annual Flood Ctrl & Multi-Use Zone (Elevation)

* 1837.5 ft msl - 1850 ft msl

Exclusive Flood Ctrl Zone (Elevation)

* 1850 ft msl - 1854 ft msl

Top of Spillway Gates

* 1854 ft msl

River Stage (Bismarck)

* 16.08 (0715 CDT 2 Jun)

* Flood stage - 16 ft

* 15.83 ft (0715 CDT 1 Jun)

Planned Scheduled Releases (Subject to Change)

* Releases will be stepped up to 150,000 cfs by mid June.

* Reservoir will use several feet of surcharge storage above exclusive flood control pool as spillway gates are raised.

* First time in history, spillway gates will be used to pass floodwaters.

Record Flow (Year)

* 65,000 cfs (1975)

Projected Record Flow (Date)

* 150,000 cfs (Mid June)

Oahe(In operation since 1962)

Midnight Elevation

* 1618.9 ft msl

* 24-hr Change (+0.1 ft)

Daily Avg. Inflow

* 101,000 cfs (1 Jun)

* 103,000 cfs (31 May)

Daily Avg. Release

* 86,100 cfs (1 Jun)

* 86,300 cfs (31 May)

Annual Flood Ctrl & Multi-Use Zone (Elevation)

* 1607.5 ft msl - 1620 ft msl

Exclusive Flood Ctrl Zone (Elevation)

* 1617 ft msl - 1620 ft msl

Top of Spillway Gates

* 1620 ft msl

River Stage (Pierre)

* 15.39 (0715 CDT 1 Jun)

* Flood stage - 15 ft

* 15.13 ft (0715 CDT 1 Jun)

Planned Scheduled Releases (Subject to Change)

* Releases will be stepped up to 150,000 cfs by mid June.

* Reservoir will peak within a foot of the top of the spillway gates at 1619 feet.

Record Flow (Year)

* 59,000 cfs (1997)

Projected Record Flow (Date)

* 150,000 cfs (Mid June)

Big Bend (In operation since 1964)

Midnight Elevation

* 1419.5 ft msl

* 24-hr Change (+0.5 ft)

Daily Avg. Inflow

* 82,000 cfs (1 Jun)

* 83,000 cfs (31 May)

Daily Avg. Release

* 69,500 cfs (1 Jun)

* 83,900 cfs (31 May)

Annual Flood Ctrl & Multi-Use Zone (Elevation)

* 1420 ft msl - 1423 ft msl

Exclusive Flood Ctrl Zone (Elevation)

* 1422 ft msl - 1423 ft msl

Top of Spillway Gates

* 1423 ft msl

Planned Scheduled Releases (Subject to Change)

* Releases will be stepped up to 150,000 cfs by mid June.

* Reservoir will remain essentially level at 1420 feet.

Record Flow (Date)

* 74,000 cfs (1997)

Projected Record Flow (Date)

* 150,000 cfs (Mid June)

Fort Randall (In operation since 1953)

Midnight Elevation

* 1360.0 ft msl

* 24-hr Change (+0.1 ft)

Daily Avg. Inflow

* 86,000 cfs (1 Jun)

* 94,000 cfs (31 May)

Daily Avg. Release

* 79,900 cfs (1 Jun)

* 76,600 cfs (31 May)

Annual Flood Ctrl & Multi-Use Zone (Elevation)

* 1350 ft msl - 1375 ft msl

Exclusive Flood Ctrl Zone (Elevation)

* 1365 ft msl - 1375 ft msl

Top of Spillway Gates

* 1375 ft msl

Planned Scheduled Releases (Subject to Change)

* Releases will be stepped up to 150,000 cfs by mid June.

Record Flow (Date)

* 67,000 cfs (1997)

Projected Record Flow (Date)

* 150,000 cfs (Mid June)

Gavins Point (In operation since 1955)

Midnight Elevation

* 1206.5 ft msl

* 24-hr Change (0.0 ft)

Daily Avg. Inflow

* 81,000 cfs (1 Jun)

* 76,000 cfs (31 May)

Daily Avg. Release

* 80,000 cfs (1 Jun)

* 77,000 cfs (31 May)

Annual Flood Ctrl & Multi-Use Zone (Elevation)

* 1204.5 ft msl - 1210 ft msl

Exclusive Flood Ctrl Zone (Elevation)

* 1208 ft msl - 1210 ft msl

Top of Spillway Gates

* 1210 ft msl

Planned Scheduled Releases (Subject to Change)

* Releases will be stepped up to 150,000 cfs by mid June.

Record Flow (Date)

* 70,000 cfs (1997)

Projected Record Flow (Date)

* 150,000 cfs (Mid June)

Source of information: http://www.nwd-mr.usace.army.mil/rcc

Missouri River Mainstem 24-Hour Forecast Conditions (Updated 2 Jun; 0845 CDT)

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24-hr forecast (Glasgow, MT)

Today: A 40 percent chance of showers and thunderstorms. Partly sunny, with a high near 74. East wind between 14 and 17 mph becoming light. Winds could gust as high as 24 mph.

Tonight: A chance of showers and thunderstorms. Mostly cloudy, with a low around 49. West southwest wind between 16 and 18 mph, with gusts as high as 25 mph. Chance of precipitation is 30%.

Friday: A chance of showers, with thunderstorms also possible after noon. Mostly cloudy, with a high near 64. Breezy, with a west wind around 25 mph, with gusts as high as 36 mph. Chance of precipitation is 50%.

****

24-hr forecast (Riverdale, ND)

Today: A 50 percent chance of showers and thunderstorms. Some of the storms could be severe. Partly sunny, with a high near 81. Breezy, with a south wind between 17 and 20 mph, with gusts as high as 28 mph.

Tonight: A 30 percent chance of showers and thunderstorms. Mostly cloudy, with a low around 53. West wind between 10 and 16 mph, with gusts as high as 23 mph.

Friday: Mostly sunny, with a high near 67. Breezy, with a west wind 14 to 17 mph increasing to between 25 and 28 mph. Winds could gust as high as 39 mph.

****

24-hr forecast (Washburn, ND)

Today: A 50 percent chance of showers and thunderstorms. Some of the storms could be severe. Mostly cloudy, with a high near 82. Breezy, with a south wind between 17 and 21 mph, with gusts as high as 29 mph.

Tonight: A 30 percent chance of showers and thunderstorms. Mostly cloudy, with a low around 54. South wind 9 to 17 mph becoming west. Winds could gust as high as 24 mph.

Friday: Mostly sunny, with a high near 68. Breezy, with a west wind 13 to 16 mph increasing to between 25 and 28 mph. Winds could gust as high as 38 mph.

****

24-hr forecast (Bismarck/Mandan, ND)

Today: A 40 percent chance of showers and thunderstorms, mainly before 1pm. Some of the storms could be severe. Mostly cloudy, with a high near 86. Breezy, with a south wind between 16 and 20 mph, with gusts as high as 28 mph.

Tonight: A 30 percent chance of showers and thunderstorms, mainly before 1am. Some of the storms could be severe. Mostly cloudy, with a low around 55. South wind 8 to 15 mph becoming west. Winds could gust as high as 22 mph.

Friday: Mostly sunny, with a high near 69. Breezy, with a west wind 11 to 14 mph increasing to between 21 and 24 mph. Winds could gust as high as 34 mph.

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24-hr forecast (Pierre, SD)

Today: Mostly sunny and hot, with a high near 92. Breezy, with a south southeast wind between 17 and 24 mph, with gusts as high as 33 mph.

Tonight: A 30 percent chance of showers and thunderstorms before 1am. Partly cloudy, with a low around 58. South wind 8 to 13 mph becoming north northwest.

Friday: Mostly sunny, with a high near 78. West northwest wind around 16 mph.

****

24-hr forecast (Ft. Pierre)

Today: Mostly sunny and hot, with a high near 92. Breezy, with a south southeast wind between 17 and 23 mph, with gusts as high as 32 mph.

Tonight: A 30 percent chance of showers and thunderstorms before 1am. Partly cloudy, with a low around 58. South southwest wind 7 to 13 mph becoming north northwest.

Friday: Mostly sunny, with a high near 78. West northwest wind around 16 mph.

****

24-hr forecast (Lower Brule)

Today: Mostly sunny and hot, with a high near 92. Breezy, with a south southeast wind between 21 and 28 mph, with gusts as high as 38 mph.

Tonight: A 30 percent chance of showers and thunderstorms, mainly before 1am. Partly cloudy, with a low around 60. South wind 6 to 16 mph becoming west northwest.

Friday: Mostly sunny, with a high near 78. West northwest wind between 14 and 18 mph.

****

24-hr forecast (Chamberlain, SD)

Today: Partly sunny, with a high near 92. Breezy, with a south southeast wind between 18 and 22 mph, with gusts as high as 31 mph.

Tonight: A slight chance of showers and thunderstorms before 9pm, then a chance of thunderstorms between 9pm and 4am, then a slight chance of showers and thunderstorms after 4am. Some storms could be severe, with large hail and damaging winds. Mostly cloudy, with a low around 62. South southeast wind 8 to 17 mph becoming west northwest. Winds could gust as high as 26 mph. Chance of precipitation is 50%.

Friday: A slight chance of showers and thunderstorms before 7am. Mostly sunny, with a high near 78. Breezy, with a west northwest wind between 15 and 20 mph, with gusts as high as 28 mph. Chance of precipitation is 10%.

****

24-hr forecast (Yankton, SD)

Today: Partly sunny, with a high near 90. Breezy, with a south southeast wind between 16 and 24 mph, with gusts as high as 32 mph.

Tonight: A slight chance of showers and thunderstorms after 4am. Mostly cloudy, with a low around 71. Breezy, with a south wind between 15 and 22 mph, with gusts as high as 31 mph. Chance of precipitation is 20%.

Friday: A slight chance of showers and thunderstorms before 7am. Partly sunny, with a high near 79. Southwest wind 11 to 16 mph becoming northwest. Chance of precipitation is 10%.

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24-hr forecast (Sioux City, IA)

Today: Partly sunny, with a high near 89. Breezy, with a south wind between 15 and 24 mph, with gusts as high as 33 mph.

Tonight: Partly cloudy, with a low around 72. Breezy, with a south wind between 14 and 22 mph, with gusts as high as 31 mph.

Friday: Mostly sunny, with a high near 83. South wind 14 to 16 mph becoming west.

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24-hr forecast (Omaha, NE)

Today: Mostly sunny, with a high near 91. Breezy, with a south wind between 14 and 24 mph, with gusts as high as 33 mph.

Tonight: Mostly clear, with a low around 70. Breezy, with a south wind between 15 and 21 mph, with gusts as high as 29 mph.

Friday: Mostly sunny, with a high near 90. South southwest wind between 13 and 16 mph, with gusts as high as 24 mph.

Source of information: http://www.weather.gov/

Internet: http://www.nwo.usace.army.mil

Facebook: http://www.facebook.com/OmahaUSACE

Twitter: http://www.twitter.com/OmahaUSACE

YouTube: http://www.youtube.com/OmahaUSACE

Flickr: http://www.flickr.com/photos/omahausace

INFORMATION BELOW IS FOUO

Missouri River Flooding (Logistics) (Updated 2 Jun 11)

Personnel Deployed

* 4 (Glasgow, MT)
* 9 (Lander, WY)
* 16 (Bismarck, ND)
* 6 (Fort Yates, ND)
* 4 (Williston, ND)
* 1 (Minot, ND)
* 8 (Pierre, SD)
* 14 (Sioux City, IA)
* 2 (Missouri River Survey)
* 1 (Decatur, NE)
* 3 (Offutt, NE)
* 12 (North Platte, NE)
* 1 (Kansas City, MO)

Equipment Deployed

HESCO

* Issued: 28,040 LF

* On Hand: 5610 (4840-4' and 770 LF of 3')

* Projected Outstanding Requirements: 52,000 LF

* Currently working on: 26,000 LF from Louisiana and 30,000 LF via vendor

Poly Rolls

* Issued: 1384 rolls

* On Hand: 0 rolls

* Projected Outstanding Requirements: 1500 rolls

* Currently working with District Contracting. 1000 rolls shipping from contractor 7 Jun 2011

Pumps

* Issued: 12 pumps

* On Hand: ZERO

* Projected Outstanding Requirements: 12 pumps

* Currently working with District Contracting for 12"-16" pumps

Additional Supplies due in:

* 1280 LF of RDFW from LA

* 1K ea 2K sandbags from LA

Sandbags:

* Issued: 7.35 M

* On Hand: 466,000

* Projected Outstanding Requirements: 15.25 M

* Currently working on: 2 M from vendors and CENWS

* Working requisitions with District Contracting

* 1st Shipment of 500K arrived 1 June

* 700K due in 8 June

Source of information: CMT Brief (1 Jun 11)

Classification: UNCLASSIFIED
Caveats: NONE

Classification: UNCLASSIFIED
Caveats: NONE

US Army Corps of Engineers
Omaha District

Missouri River Mainstem Reservoir Bulletin (Updated 2 Jun; 0845 CDT)

Fort Peck
(In operation since 1940)

Midnight Elevation
- 2249.4 ft msl
- 24-hr Change (+0.5 ft)

Daily Avg. Inflow
- 73,000 cfs (1 Jun)
- 78,000 cfs (31 May)

Daily Avg. Release
- 9,600 cfs (1 Jun)
- 9,700 cfs (31 May)

Annual Flood Ctrl & Multi-Use Zone (Elevation)
- 2234 ft msl – 2246 ft msl

Exclusive Flood Ctrl Zone (Elevation)
- 2246 ft msl – 2250 ft msl

Top of Spillway Gates
- 2250 ft msl

Planned Scheduled Releases (Subject to Change)
- Peak release will be 50,000 cfs by no later than mid June.
- Reservoir will use several feet of surcharge storage above the exclusive flood control pool as spillway gates are raised.

Record Flow (Year)
- 35,000 cfs (1975)

Projected Record Flow (Date)
- 50,000 cfs (Mid June)

Garrison
(In operation since 1955)

Midnight Elevation
- 1853.4 ft msl
- 24-hr Change (+0.1 ft)

Daily Avg. Inflow
- 131,000 cfs (1 Jun)
- 137,000 cfs (31 May)

Daily Avg. Release
- 91,300 cfs (1 Jun)
- 85,500 cfs (31 May)

Annual Flood Ctrl & Multi-Use Zone (Elevation)
- 1837.5 ft msl – 1850 ft msl

Exclusive Flood Ctrl Zone (Elevation)
- 1850 ft msl – 1854 ft msl

Top of Spillway Gates
- 1854 ft msl

River Stage (Bismarck)
- 16.08 (0715 CDT 2 Jun)
- Flood stage – 16 ft
- 15.83 ft (0715 CDT 1 Jun)

Planned Scheduled Releases (Subject to Change)
- Releases will be stepped up to 150,000 cfs by mid June.
- Reservoir will use several feet of surcharge storage above exclusive flood control pool as spillway gates are raised.
- First time in history, spillway gates will be used to pass floodwaters.

Record Flow (Year)
- 65,000 cfs (1975)

Projected Record Flow (Date)
- 150,000 cfs (Mid June)

Oahe
(In operation since 1962)

Midnight Elevation
- 1618.9 ft msl
- 24-hr Change (+0.1 ft)

Daily Avg. Inflow
- 101,000 cfs (1 Jun)
- 103,000 cfs (31 May)

Daily Avg. Release
- 86,100 cfs (1 Jun)
- 86,300 cfs (31 May)

Annual Flood Ctrl & Multi-Use Zone (Elevation)
- 1607.5 ft msl – 1620 ft msl

Exclusive Flood Ctrl Zone (Elevation)
- 1617 ft msl – 1620 ft msl

Top of Spillway Gates
- 1620 ft msl

River Stage (Pierre)
- 15.39 (0715 CDT 1 Jun)
- Flood stage – 15 ft
- 15.13 ft (0715 CDT 1 Jun)

Planned Scheduled Releases (Subject to Change)
- Releases will be stepped up to 150,000 cfs by mid June.
- Reservoir will peak within a foot of the top of the spillway gates at 1619 feet.

Record Flow (Year)
- 59,000 cfs (1997)

Projected Record Flow (Date)
- 150,000 cfs (Mid June)

Big Bend
(In operation since 1964)

Midnight Elevation
- 1419.5 ft msl
- 24-hr Change (+0.5 ft)

Daily Avg. Inflow
- 82,000 cfs (1 Jun)
- 83,000 cfs (31 May)

Daily Avg. Release
- 69,500 cfs (1 Jun)
- 83,900 cfs (31 May)

Annual Flood Ctrl & Multi-Use Zone (Elevation)
- 1420 ft msl – 1423 ft msl

Exclusive Flood Ctrl Zone (Elevation)
- 1422 ft msl – 1423 ft msl

Top of Spillway Gates
- 1423 ft msl

Planned Scheduled Releases (Subject to Change)
- Releases will be stepped up to 150,000 cfs by mid June.
- Reservoir will remain essentially level at 1420 feet.

Record Flow (Date)
- 74,000 cfs (1997)

Projected Record Flow (Date)
- 150,000 cfs (Mid June)

Fort Randall
(In operation since 1953)

Midnight Elevation
- 1360.0 ft msl
- 24-hr Change (+0.1 ft)

Daily Avg. Inflow
- 86,000 cfs (1 Jun)
- 94,000 cfs (31 May)

Daily Avg. Release
- 79,900 cfs (1 Jun)
- 76,600 cfs (31 May)

Annual Flood Ctrl & Multi-Use Zone (Elevation)
- 1350 ft msl – 1375 ft msl

Exclusive Flood Ctrl Zone (Elevation)
- 1365 ft msl – 1375 ft msl

Top of Spillway Gates
- 1375 ft msl

Planned Scheduled Releases (Subject to Change)
- Releases will be stepped up to 150,000 cfs by mid June.

Record Flow (Date)
- 67,000 cfs (1997)

Projected Record Flow (Date)
- 150,000 cfs (Mid June)

Gavins Point
(In operation since 1955)

Midnight Elevation
- 1206.5 ft msl
- 24-hr Change (0.0 ft)

Daily Avg. Inflow
- 81,000 cfs (1 Jun)
- 76,000 cfs (31 May)

Daily Avg. Release
- 80,000 cfs (1 Jun)
- 77,000 cfs (31 May)

Annual Flood Ctrl & Multi-Use Zone (Elevation)
- 1204.5 ft msl – 1210 ft msl

Exclusive Flood Ctrl Zone (Elevation)
- 1208 ft msl – 1210 ft msl

Top of Spillway Gates
- 1210 ft msl

Planned Scheduled Releases (Subject to Change)
- Releases will be stepped up to 150,000 cfs by mid June.

Record Flow (Date)
- 70,000 cfs (1997)

Projected Record Flow (Date)
- 150,000 cfs (Mid June)

Source of information: http://www.nwd-mr.usace.army.mil/rcc

US Army Corps of Engineers
Omaha District

Missouri River Mainstem 24-Hour Forecast Conditions (Updated 2 Jun; 0845 CDT)

Fort Peck	Garrison	Oahe	Big Bend	Fort Randall	Gavins Point
24-hr forecast (Glasgow, MT) **Today:** A 40 percent chance of showers and thunderstorms. Partly sunny, with a high near 74. East wind between 14 and 17 mph becoming light. Winds could gust as high as 24 mph. **Tonight:** A chance of showers and thunderstorms. Mostly cloudy, with a low around 49. West southwest wind between 16 and 18 mph, with gusts as high as 25 mph. Chance of precipitation is 30%. **Friday:** A chance of showers, with thunderstorms also possible after noon. Mostly cloudy, with a high near 64. Breezy, with a west wind around 25 mph, with gusts as high as 36 mph. Chance of precipitation is 50%.	***24-hr forecast (Riverdale, ND)*** **Today:** A 50 percent chance of showers and thunderstorms. Some of the storms could be severe. Partly sunny, with a high near 81. Breezy, with a south wind between 17 and 20 mph, with gusts as high as 28 mph. **Tonight:** A 30 percent chance of showers and thunderstorms. Mostly cloudy, with a low around 53. West wind between 10 and 16 mph, with gusts as high as 23 mph. **Friday:** Mostly sunny, with a high near 67. Breezy, with a west wind 14 to 17 mph increasing to between 25 and 28 mph. Winds could gust as high as 39 mph. ***24-hr forecast (Washburn, ND)*** **Today:** A 50 percent chance of showers and thunderstorms. Some of the storms could be severe. Mostly cloudy, with a high near 82. Breezy, with a south wind between 17 and 21 mph, with gusts as high as 29 mph. **Tonight:** A 30 percent chance of showers and thunderstorms. Mostly cloudy, with a low around 54. South wind 9 to 17 mph becoming west. Winds could gust as high as 24 mph. **Friday:** Mostly sunny, with a high near 68. Breezy, with a west wind 13 to 16 mph increasing to between 25 and 28 mph. Winds could gust as high as 38 mph.	***24-hr forecast (Pierre, SD)*** **Today:** Mostly sunny and hot, with a high near 92. Breezy, with a south southeast wind between 17 and 24 mph, with gusts as high as 33 mph. **Tonight:** A 30 percent chance of showers and thunderstorms before 1am. Partly cloudy, with a low around 58. South wind 8 to 13 mph becoming north northwest. **Friday:** Mostly sunny, with a high near 78. West northwest wind around 16 mph. ***24-hr forecast (Ft. Pierre)*** **Today:** Mostly sunny and hot, with a high near 92. Breezy, with a south southeast wind between 17 and 23 mph, with gusts as high as 32 mph. **Tonight:** A 30 percent chance of showers and thunderstorms before 1am. Partly cloudy, with a low around 58. South southwest wind 7 to 13 mph becoming north northwest. **Friday:** Mostly sunny, with a high near 78. West northwest wind around 16 mph.	***24-hr forecast (Lower Brule)*** **Today:** Mostly sunny and hot, with a high near 92. Breezy, with a south southeast wind between 21 and 28 mph, with gusts as high as 38 mph. **Tonight:** A 30 percent chance of showers and thunderstorms, mainly before 1am. Partly cloudy, with a low around 60. South wind 6 to 16 mph becoming west northwest. **Friday:** Mostly sunny, with a high near 78. West northwest wind between 14 and 18 mph.	***24-hr forecast (Chamberlain, SD)*** **Today:** Partly sunny, with a high near 92. Breezy, with a south southeast wind between 18 and 22 mph, with gusts as high as 31 mph. **Tonight:** A slight chance of showers and thunderstorms before 9pm, then a chance of thunderstorms between 9pm and 4am, then a slight chance of showers and thunderstorms after 4am. Some storms could be severe, with large hail and damaging winds. Mostly cloudy, with a low around 62. South southeast wind 8 to 17 mph becoming west northwest. Winds could gust as high as 26 mph. Chance of precipitation is 50%. **Friday:** A slight chance of showers and thunderstorms before 7am. Mostly sunny, with a high near 78. Breezy, with a west northwest wind between 15 and 20 mph, with gusts as high as 28 mph. Chance of precipitation is 10%.	***24-hr forecast (Yankton, SD)*** **Today:** Partly sunny, with a high near 90. Breezy, with a south southeast wind between 16 and 24 mph, with gusts as high as 32 mph. **Tonight:** A slight chance of showers and thunderstorms after 4am. Mostly cloudy, with a low around 71. Breezy, with a south wind between 15 and 22 mph, with gusts as high as 31 mph. Chance of precipitation is 20%. **Friday:** A slight chance of showers and thunderstorms before 7am. Partly sunny, with a high near 79. Southwest wind 11 to 16 mph becoming northwest. Chance of precipitation is 10%. ***24-hr forecast (Sioux City, IA)*** **Today:** Partly sunny, with a high near 89. Breezy, with a south wind between 15 and 24 mph, with gusts as high as 33 mph. **Tonight:** Partly cloudy, with a low around 72. Breezy, with a south wind between 14 and 22 mph, with gusts as high as 31 mph. **Friday:** Mostly sunny, with a high near 83. South wind 14 to 16 mph becoming west.

Source of information: http://www.weather.gov

US Army Corps of Engineers
Omaha District

Missouri River Mainstem 24-Hour Forecast Conditions (Updated 2 Jun; 0845 CDT)

Fort Peck	Garrison	Oahe	Big Bend	Fort Randall	Gavins Point
	24-hr forecast (Bismarck/Mandan, ND) **Today:** A 40 percent chance of showers and thunderstorms, mainly before 1pm. Some of the storms could be severe. Mostly cloudy, with a high near 86. Breezy, with a south wind between 16 and 20 mph, with gusts as high as 28 mph. **Tonight:** A 30 percent chance of showers and thunderstorms, mainly before 1am. Some of the storms could be severe. Mostly cloudy, with a low around 55. South wind 8 to 15 mph becoming west. Winds could gust as high as 22 mph. **Friday:** Mostly sunny, with a high near 69. Breezy, with a west wind 11 to 14 mph increasing to between 21 and 24 mph. Winds could gust as high as 34 mph.				***24-hr forecast (Omaha, NE)*** **Today:** Mostly sunny, with a high near 91. Breezy, with a south wind between 14 and 24 mph, with gusts as high as 33 mph. **Tonight:** Mostly clear, with a low around 70. Breezy, with a south wind between 15 and 21 mph, with gusts as high as 29 mph. **Friday:** Mostly sunny, with a high near 90. South southwest wind between 13 and 16 mph, with gusts as high as 24 mph.

Source of information: http://www.weather.gov/
Internet: http://www.nwo.usace.army.mil
Facebook: http://www.facebook.com/OmahaUSACE
Twitter: http://www.twitter.com/OmahaUSACE
YouTube: http://www.youtube.com/OmahaUSACE
Flickr: http://www.flickr.com/photos/omahausace

US Army Corps of Engineers
Omaha District

Missouri River Flooding (Logistics) (Updated 2 Jun 11)

Personnel Deployed

- 4 (Glasgow, MT)
- 9 (Lander, WY)
- 16 (Bismarck, ND)
- 6 (Fort Yates, ND)
- 4 (Williston, ND)
- 1 (Minot, ND)
- 8 (Pierre, SD)
- 14 (Sioux City, IA)
- 2 (Missouri River Survey)
- 1 (Decatur, NE)
- 3 (Offutt, NE)
- 12 (North Platte, NE)
- 1 (Kansas City, MO)

Equipment Deployed

HESCO
- Issued: 28,040 LF
- On Hand: 5610 (4840-4' and 770 LF of 3')
- Projected Outstanding Requirements: 52,000 LF
- Currently working on: 26,000 LF from Louisiana and 30,000 LF via vendor

Poly Rolls
- Issued: 1384 rolls
- On Hand: 0 rolls
- Projected Outstanding Requirements: 1500 rolls
- Currently working with District Contracting. 1000 rolls shipping from contractor 7 Jun 2011

Pumps
- Issued: 12 pumps
- On Hand: ZERO
- Projected Outstanding Requirements: 12 pumps
- Currently working with District Contracting for 12"-16" pumps

Additional Supplies due in:
- 1280 LF of RDFW from LA
- 1K ea 2K sandbags from LA

Sandbags:
- Issued: 7.35 M
- On Hand: 466,000
- Projected Outstanding Requirements: 15.25 M
- Currently working on: 2 M from vendors and CENWS
- Working requisitions with District Contracting
- 1st Shipment of 500K arrived 1 June
- 700K due in 8 June

Source of information: CMT Brief (1 Jun 11)

[redacted] NWO

From: Williamson, Eileen L NWO
Sent: Thursday, June 02, 2011 10:41 AM
To: DLL-CENWO-ALL Employees; DLL-CENWD Zorinsky-Floor 3
Subject: Riverwatch - June 2, 2011 #2011MoRivFlood (UNCLASSIFIED)
Attachments: 602NR-RIVERWATCH6-11.pdf

Classification: UNCLASSIFIED
Caveats: NONE

As Corps employees, we know that your friends and neighbors may have questions regarding the flooding.

Below is the official information that we have available.

We are posting this information to Facebook on a daily basis.
http://us.vocuspr.com/Publish/520028/PRAssetNWORiverwatch.xml

Please use this information or direct people who ask you questions to Facebook.
This will be sent daily through the duration of the flooding event.

Regards, Eileen Williamson

Missouri River Mainstem Reservoir Bulletin (Updated 2 Jun; 0845 CDT)

Fort Peck (In operation since 1940)
Midnight Elevation
* 2249.4 ft msl
* 24-hr Change (+0.5 ft)

Daily Avg. Inflow
* 73,000 cfs (1 Jun)
* 78,000 cfs (31 May)

Daily Avg. Release
* 9,600 cfs (1 Jun)
* 9,700 cfs (31 May)

Annual Flood Ctrl & Multi-Use Zone (Elevation)
* 2234 ft msl - 2246 ft msl

Exclusive Flood Ctrl Zone (Elevation)
* 2246 ft msl - 2250 ft msl

Top of Spillway Gates
* 2250 ft msl

Planned Scheduled Releases (Subject to Change)
* Peak release will be 50,000 cfs by no later than mid June.
* Reservoir will use several feet of surcharge storage above the exclusive flood control pool as spillway gates are raised.

Record Flow (Year)
* 35,000 cfs (1975)

Projected Record Flow (Date)
* 50,000 cfs (Mid June)

Garrison (In operation since 1955)
Midnight Elevation
* 1853.4 ft msl
* 24-hr Change (+0.1 ft)

Daily Avg. Inflow
* 131,000 cfs (1 Jun)
* 137,000 cfs (31 May)

Daily Avg. Release
* 91,300 cfs (1 Jun)
* 85,500 cfs (31 May)

Annual Flood Ctrl & Multi-Use Zone (Elevation)
* 1837.5 ft msl - 1850 ft msl

Exclusive Flood Ctrl Zone (Elevation)
* 1850 ft msl - 1854 ft msl

Top of Spillway Gates
* 1854 ft msl

River Stage (Bismarck)
* 16.08 (0715 CDT 2 Jun)
* Flood stage - 16 ft
* 15.83 ft (0715 CDT 1 Jun)

Planned Scheduled Releases (Subject to Change)
* Releases will be stepped up to 150,000 cfs by mid June.
* Reservoir will use several feet of surcharge storage above exclusive flood control pool as spillway gates are raised.
* First time in history, spillway gates will be used to pass floodwaters.

Record Flow (Year)
* 65,000 cfs (1975)

Projected Record Flow (Date)
* 150,000 cfs (Mid June)

Oahe(In operation since 1962)
Midnight Elevation
* 1618.9 ft msl
* 24-hr Change (+0.1 ft)

Daily Avg. Inflow
* 101,000 cfs (1 Jun)
* 103,000 cfs (31 May)

Daily Avg. Release

* 86,100 cfs (1 Jun)
* 86,300 cfs (31 May)

Annual Flood Ctrl & Multi-Use Zone (Elevation)
* 1607.5 ft msl - 1620 ft msl

Exclusive Flood Ctrl Zone (Elevation)
* 1617 ft msl - 1620 ft msl

Top of Spillway Gates
* 1620 ft msl

River Stage (Pierre)
* 15.39 (0715 CDT 1 Jun)
* Flood stage - 15 ft
* 15.13 ft (0715 CDT 1 Jun)

Planned Scheduled Releases (Subject to Change)
* Releases will be stepped up to 150,000 cfs by mid June.
* Reservoir will peak within a foot of the top of the spillway gates at 1619 feet.

Record Flow (Year)
* 59,000 cfs (1997)

Projected Record Flow (Date)
* 150,000 cfs (Mid June)

Big Bend (In operation since 1964)
Midnight Elevation
* 1419.5 ft msl
* 24-hr Change (+0.5 ft)

Daily Avg. Inflow
* 82,000 cfs (1 Jun)
* 83,000 cfs (31 May)

Daily Avg. Release
* 69,500 cfs (1 Jun)
* 83,900 cfs (31 May)

Annual Flood Ctrl & Multi-Use Zone (Elevation)
* 1420 ft msl - 1423 ft msl

Exclusive Flood Ctrl Zone (Elevation)
* 1422 ft msl - 1423 ft msl

Top of Spillway Gates
* 1423 ft msl

Planned Scheduled Releases (Subject to Change)
* Releases will be stepped up to 150,000 cfs by mid June.
* Reservoir will remain essentially level at 1420 feet.

Record Flow (Date)
* 74,000 cfs (1997)

Projected Record Flow (Date)
* 150,000 cfs (Mid June)

Fort Randall (In operation since 1953)
Midnight Elevation
* 1360.0 ft msl
* 24-hr Change (+0.1 ft)

Daily Avg. Inflow
* 86,000 cfs (1 Jun)
* 94,000 cfs (31 May)

Daily Avg. Release
* 79,900 cfs (1 Jun)
* 76,600 cfs (31 May)

Annual Flood Ctrl & Multi-Use Zone (Elevation)
* 1350 ft msl - 1375 ft msl

Exclusive Flood Ctrl Zone (Elevation)
* 1365 ft msl - 1375 ft msl

Top of Spillway Gates
* 1375 ft msl

Planned Scheduled Releases (Subject to Change)
* Releases will be stepped up to 150,000 cfs by mid June.

Record Flow (Date)
* 67,000 cfs (1997)

Projected Record Flow (Date)
* 150,000 cfs (Mid June)

Gavins Point (In operation since 1955)
Midnight Elevation
* 1206.5 ft msl
* 24-hr Change (0.0 ft)

Daily Avg. Inflow
* 81,000 cfs (1 Jun)
* 76,000 cfs (31 May)

Daily Avg. Release
* 80,000 cfs (1 Jun)
* 77,000 cfs (31 May)

Annual Flood Ctrl & Multi-Use Zone (Elevation)
* 1204.5 ft msl - 1210 ft msl

Exclusive Flood Ctrl Zone (Elevation)
* 1208 ft msl - 1210 ft msl

Top of Spillway Gates
* 1210 ft msl

Planned Scheduled Releases (Subject to Change)
* Releases will be stepped up to 150,000 cfs by mid June.

Record Flow (Date)
* 70,000 cfs (1997)

Projected Record Flow (Date)
* 150,000 cfs (Mid June)

Source of information: http://www.nwd-mr.usace.army.mil/rcc

Missouri River Mainstem 24-Hour Forecast Conditions (Updated 2 Jun; 0845 CDT)
****
24-hr forecast (Glasgow, MT)
Today: A 40 percent chance of showers and thunderstorms. Partly sunny, with a high near 74. East wind between 14 and 17 mph becoming light. Winds could gust as high as 24 mph.

Tonight: A chance of showers and thunderstorms. Mostly cloudy, with a low around 49. West southwest wind between 16 and 18 mph, with gusts as high as 25 mph. Chance of precipitation is 30%.

Friday: A chance of showers, with thunderstorms also possible after noon. Mostly cloudy, with a high near 64. Breezy, with a west wind around 25 mph, with gusts as high as 36 mph. Chance of precipitation is 50%.

****
24-hr forecast (Riverdale, ND)
Today: A 50 percent chance of showers and thunderstorms. Some of the storms could be severe. Partly sunny, with a high near 81. Breezy, with a south wind between 17 and 20 mph, with gusts as high as 28 mph.

Tonight: A 30 percent chance of showers and thunderstorms. Mostly cloudy, with a low around 53. West wind between 10 and 16 mph, with gusts as high as 23 mph.

Friday: Mostly sunny, with a high near 67. Breezy, with a west wind 14 to 17 mph increasing to between 25 and 28 mph. Winds could gust as high as 39 mph.

****
24-hr forecast (Washburn, ND)
Today: A 50 percent chance of showers and thunderstorms. Some of the storms could be severe. Mostly cloudy, with a high near 82. Breezy, with a south wind between 17 and 21 mph, with gusts as high as 29 mph.

Tonight: A 30 percent chance of showers and thunderstorms. Mostly cloudy, with a low around 54. South wind 9 to 17 mph becoming west. Winds could gust as high as 24 mph.

Friday: Mostly sunny, with a high near 68. Breezy, with a west wind 13 to 16 mph increasing to between 25 and 28 mph. Winds could gust as high as 38 mph.

****
24-hr forecast (Bismarck/Mandan, ND)

Today: A 40 percent chance of showers and thunderstorms, mainly before 1pm. Some of the storms could be severe. Mostly cloudy, with a high near 86. Breezy, with a south wind between 16 and 20 mph, with gusts as high as 28 mph.

Tonight: A 30 percent chance of showers and thunderstorms, mainly before 1am. Some of the storms could be severe. Mostly cloudy, with a low around 55. South wind 8 to 15 mph becoming west. Winds could gust as high as 22 mph.

Friday: Mostly sunny, with a high near 69. Breezy, with a west wind 11 to 14 mph increasing to between 21 and 24 mph. Winds could gust as high as 34 mph.

****

24-hr forecast (Pierre, SD)
Today: Mostly sunny and hot, with a high near 92. Breezy, with a south southeast wind between 17 and 24 mph, with gusts as high as 33 mph.

Tonight: A 30 percent chance of showers and thunderstorms before 1am. Partly cloudy, with a low around 58. South wind 8 to 13 mph becoming north northwest.

Friday: Mostly sunny, with a high near 78. West northwest wind around 16 mph.

****

24-hr forecast (Ft. Pierre)
Today: Mostly sunny and hot, with a high near 92. Breezy, with a south southeast wind between 17 and 23 mph, with gusts as high as 32 mph.

Tonight: A 30 percent chance of showers and thunderstorms before 1am. Partly cloudy, with a low around 58. South southwest wind 7 to 13 mph becoming north northwest.

Friday: Mostly sunny, with a high near 78. West northwest wind around 16 mph.

****

24-hr forecast (Lower Brule)
Today: Mostly sunny and hot, with a high near 92. Breezy, with a south southeast wind between 21 and 28 mph, with gusts as high as 38 mph.

Tonight: A 30 percent chance of showers and thunderstorms, mainly before 1am. Partly cloudy, with a low around 60. South wind 6 to 16 mph becoming west northwest.

Friday: Mostly sunny, with a high near 78. West northwest wind between 14 and 18 mph.

****

24-hr forecast (Chamberlain, SD)
Today: Partly sunny, with a high near 92. Breezy, with a south southeast wind between 18 and 22 mph, with gusts as high as 31 mph.

Tonight: A slight chance of showers and thunderstorms before 9pm, then a chance of thunderstorms between 9pm and 4am, then a slight chance of showers and thunderstorms after 4am. Some storms could be severe, with large hail and damaging winds. Mostly cloudy, with a low around 62. South southeast wind 8 to 17 mph becoming west northwest. Winds could gust as high as 26 mph. Chance of precipitation is 50%.

Friday: A slight chance of showers and thunderstorms before 7am. Mostly sunny, with a high near 78. Breezy, with a west northwest wind between 15 and 20 mph, with gusts as high as 28 mph. Chance of precipitation is 10%.

****
24-hr forecast (Yankton, SD)
Today: Partly sunny, with a high near 90. Breezy, with a south southeast wind between 16 and 24 mph, with gusts as high as 32 mph.

Tonight: A slight chance of showers and thunderstorms after 4am. Mostly cloudy, with a low around 71. Breezy, with a south wind between 15 and 22 mph, with gusts as high as 31 mph. Chance of precipitation is 20%.

Friday: A slight chance of showers and thunderstorms before 7am. Partly sunny, with a high near 79. Southwest wind 11 to 16 mph becoming northwest. Chance of precipitation is 10%.

****
24-hr forecast (Sioux City, IA)
Today: Partly sunny, with a high near 89. Breezy, with a south wind between 15 and 24 mph, with gusts as high as 33 mph.

Tonight: Partly cloudy, with a low around 72. Breezy, with a south wind between 14 and 22 mph, with gusts as high as 31 mph.

Friday: Mostly sunny, with a high near 83. South wind 14 to 16 mph becoming west.

****
24-hr forecast (Omaha, NE)
Today: Mostly sunny, with a high near 91. Breezy, with a south wind between 14 and 24 mph, with gusts as high as 33 mph.

Tonight: Mostly clear, with a low around 70. Breezy, with a south wind between 15 and 21 mph, with gusts as high as 29 mph.

Friday: Mostly sunny, with a high near 90. South southwest wind between 13 and 16 mph, with gusts as high as 24 mph.

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Classification: UNCLASSIFIED
Caveats: NONE

US Army Corps of Engineers
Omaha District

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Fort Peck (In operation since 1940)	Garrison (In operation since 1955)	Oahe (In operation since 1962)	Big Bend (In operation since 1964)	Fort Randall (In operation since 1953)	Gavins Point (In operation since 1955)
Midnight Elevation ▪ 2249.4 ft msl ▪ 24-hr Change (+0.5 ft) ***Daily Avg. Inflow*** ▪ 73,000 cfs (1 Jun) ▪ 78,000 cfs (31 May) ***Daily Avg. Release*** ▪ 9,600 cfs (1 Jun) ▪ 9,700 cfs (31 May) ***Annual Flood Ctrl & Multi-Use Zone (Elevation)*** ▪ 2234 ft msl – 2246 ft msl ***Exclusive Flood Ctrl Zone (Elevation)*** ▪ 2246 ft msl – 2250 ft msl ***Top of Spillway Gates*** ▪ 2250 ft msl ***Planned Scheduled Releases (Subject to Change)*** • Peak release will be 50,000 cfs by no later than mid June. • Reservoir will use several feet of surcharge storage above the exclusive flood control pool as spillway gates are raised. ***Record Flow (Year)*** ▪ 35,000 cfs (1975) ***Projected Record Flow (Date)*** ▪ 50,000 cfs (Mid June)	***Midnight Elevation*** ▪ 1853.4 ft msl ▪ 24-hr Change (+0.1 ft) ***Daily Avg. Inflow*** ▪ 131,000 cfs (1 Jun) ▪ 137,000 cfs (31 May) ***Daily Avg. Release*** ▪ 91,300 cfs (1 Jun) ▪ 85,500 cfs (31 May) ***Annual Flood Ctrl & Multi-Use Zone (Elevation)*** ▪ 1837.5 ft msl – 1850 ft msl ***Exclusive Flood Ctrl Zone (Elevation)*** ▪ 1850 ft msl – 1854 ft msl ***Top of Spillway Gates*** ▪ 1854 ft msl ***River Stage (Bismarck)*** ▪ 16.08 (0715 CDT 2 Jun) ▪ Flood stage – 16 ft ▪ 15.83 ft (0715 CDT 1 Jun) ***Planned Scheduled Releases (Subject to Change)*** • Releases will be stepped up to 150,000 cfs by mid June. • Reservoir will use several feet of surcharge storage above exclusive flood control pool as spillway gates are raised. • First time in history, spillway gates will be used to pass floodwaters. ***Record Flow (Year)*** ▪ 65,000 cfs (1975) ***Projected Record Flow (Date)*** ▪ 150,000 cfs (Mid June)	***Midnight Elevation*** ▪ 1618.9 ft msl ▪ 24-hr Change (+0.1 ft) ***Daily Avg. Inflow*** ▪ 101,000 cfs (1 Jun) ▪ 103,000 cfs (31 May) ***Daily Avg. Release*** ▪ 86,100 cfs (1 Jun) ▪ 86,300 cfs (31 May) ***Annual Flood Ctrl & Multi-Use Zone (Elevation)*** ▪ 1607.5 ft msl – 1620 ft msl ***Exclusive Flood Ctrl Zone (Elevation)*** ▪ 1617 ft msl – 1620 ft msl ***Top of Spillway Gates*** ▪ 1620 ft msl ***River Stage (Pierre)*** ▪ 15.39 (0715 CDT 1 Jun) ▪ Flood stage – 15 ft ▪ 15.13 ft (0715 CDT 1 Jun) ***Planned Scheduled Releases (Subject to Change)*** • Releases will be stepped up to 150,000 cfs by mid June. • Reservoir will peak within a foot of the top of the spillway gates at 1619 feet. ***Record Flow (Year)*** ▪ 59,000 cfs (1997) ***Projected Record Flow (Date)*** ▪ 150,000 cfs (Mid June)	***Midnight Elevation*** ▪ 1419.5 ft msl ▪ 24-hr Change (+0.5 ft) ***Daily Avg. Inflow*** ▪ 82,000 cfs (1 Jun) ▪ 83,000 cfs (31 May) ***Daily Avg. Release*** ▪ 69,500 cfs (1 Jun) ▪ 83,900 cfs (31 May) ***Annual Flood Ctrl & Multi-Use Zone (Elevation)*** ▪ 1420 ft msl – 1423 ft msl ***Exclusive Flood Ctrl Zone (Elevation)*** ▪ 1422 ft msl – 1423 ft msl ***Top of Spillway Gates*** ▪ 1423 ft msl ***Planned Scheduled Releases (Subject to Change)*** • Releases will be stepped up to 150,000 cfs by mid June. • Reservoir will remain essentially level at 1420 feet. ***Record Flow (Date)*** ▪ 74,000 cfs (1997) ***Projected Record Flow (Date)*** ▪ 150,000 cfs (Mid June)	***Midnight Elevation*** ▪ 1360.0 ft msl ▪ 24-hr Change (+0.1 ft) ***Daily Avg. Inflow*** ▪ 86,000 cfs (1 Jun) ▪ 94,000 cfs (31 May) ***Daily Avg. Release*** ▪ 79,900 cfs (1 Jun) ▪ 76,600 cfs (31 May) ***Annual Flood Ctrl & Multi-Use Zone (Elevation)*** ▪ 1350 ft msl – 1375 ft msl ***Exclusive Flood Ctrl Zone (Elevation)*** ▪ 1365 ft msl – 1375 ft msl ***Top of Spillway Gates*** ▪ 1375 ft msl ***Planned Scheduled Releases (Subject to Change)*** • Releases will be stepped up to 150,000 cfs by mid June. ***Record Flow (Date)*** ▪ 67,000 cfs (1997) ***Projected Record Flow (Date)*** ▪ 150,000 cfs (Mid June)	***Midnight Elevation*** ▪ 1206.5 ft msl ▪ 24-hr Change (0.0 ft) ***Daily Avg. Inflow*** ▪ 81,000 cfs (1 Jun) ▪ 76,000 cfs (31 May) ***Daily Avg. Release*** ▪ 80,000 cfs (1 Jun) ▪ 77,000 cfs (31 May) ***Annual Flood Ctrl & Multi-Use Zone (Elevation)*** ▪ 1204.5 ft msl – 1210 ft msl ***Exclusive Flood Ctrl Zone (Elevation)*** ▪ 1208 ft msl – 1210 ft msl ***Top of Spillway Gates*** ▪ 1210 ft msl ***Planned Scheduled Releases (Subject to Change)*** • Releases will be stepped up to 150,000 cfs by mid June. ***Record Flow (Date)*** ▪ 70,000 cfs (1997) ***Projected Record Flow (Date)*** ▪ 150,000 cfs (Mid June)

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Omaha District

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Source of information: http://www.weather.gov

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[redacted] NWO

From: [redacted] NWK
Sent: Thursday, June 02, 2011 10:28 AM
To: [redacted] NWK; [redacted] NWK; DLL-NWK-CMT; West, Edward R; DLL-NWK-EOC-BC; [redacted] NWK; [redacted] NWK; [redacted] NWK; Farhat, Jody S NWD02; [redacted] NWO; [redacted] NWK; [redacted] NWK; [redacted] NWK

[redacted] NWO

From: [redacted] NWD02
Sent: Thursday, June 02, 2011 10:01 AM
To: DLL-CENWD-PDR; MRJIC
Cc: [redacted] NWK; [redacted] NWK; [redacted] NWK; [redacted] NWK
Subject: FW: Kansas City District - Reservoir Release Scheduling (UNCLASSIFIED)
Attachments: Rainfall_1Jun2011.jpg

Classification: UNCLASSIFIED
Caveats: NONE

FYSA.

BLUF: More details to come from NWK Water Control as they assess lower Kansas River reservoir inflows and downstream conditions.

Tremendous rains in Kansas yesterday (see daily totals below and attached graphic). Kansas City District Water Control is scheduling flood control releases from Perry, Milford, Tuttle Creek and other lower Kansas River projects to attempt to evacuate any stored flood water before the sustained 150,000 cfs Gavins releases are made.

From NWK this morning (10:00 am): NWK is reducing lake releases based on current Kansas River control points. Perry Lake and Clinton Lake releases have been reduced to low flow releases. Releases from Tuttle Creek have been cut from 15,000 cfs to 7,000 cfs. Still releasing 9,000 cfs from Milford while we are evaluating downstream conditions. Will continue to monitor conditions below Tuttle and Milford. NWK will resume flood pool evacuation releases under the deviation as Kansas River conditions allow.

ID	DESCRIPTION	STATE	06/02	SUM
WKEK1	WAKEFIELD 4W	KS	8.65	8.65
CLAK1	CLAY CENTER #1	KS	7.22E	7.22
CYCK1	CLAY CENTER, REPUB R	KS	7.22E	7.22
CCRK1	CLAY CENTER	KS	6.88E	6.89
FCTK1	FACT 3W	KS	6.50	6.51
MTTK1	TUTTLE CREEK DAM	KS	5.76	5.77
RDHK1	RANDOLPH 4WNW	KS	5.41E	5.41
RDPK1	RANDOLPH, FANCY CR	KS	5.40E	5.41
LGFK1	LONGFORD	KS	5.31E	5.32
CUBK1	CUBA	KS	5.19	5.20
IONK1	IONIA	KS	4.59	4.60
AGNK1	AGENDA	KS	4.50	4.51
PRLK1	PARALLEL	KS	4.28E	4.29
MNTK1	MANHATTAN 4N	KS	4.11	4.12
CFTK1	CLIFTON	KS	3.95	3.96
MHTK1	MANHATTAN	KS	3.81	3.82
CLDK1	CLYDE, ELK CR	KS	3.77E	3.78
MHKK1	MANHATTAN, KANSAS R	KS	3.76E	3.77
CYDK1	CLYDE	KS	3.75E	3.76
MLTK1	MILTONVALE	KS	3.75E	3.76
SYLK1	SYLVAN GROVE 1NE	KS	3.70	3.71
GLNK1	GLEN ELDER DAM	KS	3.61E	3.62
CAWK1	CAWKER CITY	KS	3.50E	3.51
CHPK1	CHAPMAN, CHAPMAN CR	KS	3.47E	3.48

BLVK1	BELLEVILLE	KS	3.45E	3.46
GLDK1	GLEN ELDER 2SE	KS	3.40E	3.41
LBNK1	LEBANON	KS	3.38	3.39
MLFK1	MILFORD DAM	KS	3.38E	3.39
HNTK1	HUNTER	KS	3.24	3.25
SMCK1	SMITH CENTER	KS	3.21	3.22
ATNK1	ALTON 2SW	KS	3.10	3.11
BELK1	BELOIT	KS	3.08	3.09
CPMK1	CHAPMAN	KS	3.08	3.09
JWLK1	JEWELL	KS	2.97E	2.98
FRYK1	FT RILEY	KS	2.96E	2.97
3JC	JUNCTION CITY	KS	2.95E	2.96
JUCK1	JUNCTION CITY 4SSW	KS	2.91E	2.92
DWNK1	DOWNS	KS	2.89E	2.90
FRI	FT RILEY	KS	2.87	2.88
FTRK1	FT RILEY, KANSAS R	KS	2.87E	2.88
WAMK1	WAMEGO 4W	KS	2.84	2.85
EFFK1	EFFINGHAM	KS	2.82	2.83
HARK1	HARLAN	KS	2.80E	2.81
ETPK1	ENTERPRISE	KS	2.76	2.77
ENTK1	ENTERPRISE	KS	2.76E	2.77
MHK	MANHATTAN MUNICPL AP	KS	2.76	2.77
ABLK1	ABILENE	KS	2.69E	2.70
MNHK1	MANHATTAN 6S	KS	2.69E	2.70

1NWSRFS FORECAST SYSTEM - PROGRAM PPDUTIL (VERSION: ob8.1 - 03/20/07) USER=MBRFC
DATE=Jun 2, 2011 - 14:02:15
0

0STATION ID	DESCRIPTION	STATE	06/02	PERIOD SUM
MSCK1	MUSCOTAH, DELAWARE R	KS	2.69	2.70
KSMC2	BELOIT 8ESE	KS	2.67E	2.68
SIMK1	SIMPSON, SOLOMON R	KS	2.66	2.67
PTIK1	PORTIS, NF SOLOMON R	KS	2.54E	2.55
WMGK1	WAMEGO #2, KANSAS R	KS	2.53E	2.54
GLCK1	GLASCO	KS	2.48E	2.49
WGOK1	WAMEGO	KS	2.47E	2.48
GLAK1	GLASCO, SOLOMON R	KS	2.45E	2.46
MANK1	MANKATO	KS	2.45	2.46
LINK1	LINCOLN, SALINE R	KS	2.40	2.41
BADK1	BARNARD 7W	KS	2.37E	2.38
WDBK1	WOODBINE, LYONS CR	KS	2.34E	2.35
LOUK1	LOUISVILLE 5NE	KS	2.26E	2.27
FSTK1	FOSTORIA 7NW	KS	2.20	2.21
WODK1	WOODSTON, SF SOLOMON	KS	2.14	2.15
WLSK1	WILSON DAM	KS	2.13E	2.14
WSRK1	WILSON DAM, SALINE R	KS	2.12	2.13
VLYK1	VALLEY FALLS 3SW	KS	2.10	2.11
HADK1	HADDAM	KS	2.07	2.08
AURK1	AURORA	KS	1.97E	1.98
BRNK1	BARNARD, SALT CR	KS	1.97	1.98
MNPK1	MINNEAPOLIS	KS	1.97	1.98
MPSK1	MINNEAPOLIS, SOLOMON	KS	1.97E	1.98
OSBK1	OSBORNE, SOLOMON R	KS	1.94	1.95
NLSK1	NILES, SOLOMON R	KS	1.91E	1.91
HLTK1	HOLTON	KS	1.90	1.90
LLLK1	LILLIS	KS	1.82	1.83

WMLK1	WESTMORELAND	KS	1.82E	1.83
COVK1	COVERT	KS	1.80	1.80
HRTK1	HORTON	KS	1.79E	1.79
ADAK1	ADA 3ESE, SALT CR	KS	1.75E	1.75
NAPN1	NAPONEE, TURKEY CR	NE	1.71E	1.72
STKK1	STOCKTON 1E	KS	1.71E	1.72
MRYK1	MARYSVILLE, BIG BLUE	KS	1.65	1.65
MRVK1	MARYSVILLE	KS	1.63E	1.63
ESBK1	ESBON 7N	KS	1.62E	1.63
FKNN1	FRANKLIN, CENTER CR	NE	1.62E	1.63
BLNK1	BLAINE	KS	1.61E	1.62
LURK1	LURAY	KS	1.61E	1.62
PTRK1	POTTER, STRANGER CR	KS	1.57	1.58
RVRN1	RIVERTON, REPUBLICAN	NE	1.57E	1.58
RVTN1	RIVERTON, THOMPSON C	NE	1.57	1.58
HUSK1	HUSCHER	KS	1.55E	1.55
GDEK1	GLADE, N FK SOLOMON	KS	1.53	1.53
BURK1	BURR OAK, WHITE ROCK	KS	1.50E	1.50
GUIN1	GUIDE ROCK, REPUB R	NE	1.50E	1.50
HOLK1	HOLTON, SOLDIER CR	KS	1.49E	1.50
BROK1	BURR OAK 1N	KS	1.48	1.49
ONGK1	ONAGA 12 SSW	KS	1.47E	1.48
COZN1	COZAD 2S, PLATTE R	NE	1.46	1.47
TQE	TEKAMAH	NE	1.44	1.45
NCMK1	NEW CAMBRIA 1SE	KS	1.43E	1.43
PHIK1	PHILLIPSBURG #2	KS	1.43E	1.43

1NWSRFS FORECAST SYSTEM - PROGRAM PPDUTIL (VERSION: ob8.1 - 03/20/07) USER=MBRFC
DATE=Jun 2, 2011 - 14:02:15
0

0STATION ID	DESCRIPTION	STATE	06/02	PERIOD SUM
PHLK1	PHILLIPSBURG 1SSE	KS	1.43E	1.43
CNK	CONCORDIA	KS	1.42	1.42
GDRN1	GUIDE ROCK	NE	1.42E	1.42
SMOK1	SMOLAN 1NE	KS	1.42	1.42
KRKM7	KIRKSVILLE (KIRX)	MO	1.39	1.39
LOVK1	LOVEWELL DAM	KS	1.39E	1.39
TSCK1	TESCOTT, SALINE R	KS	1.39E	1.39
BRMK1	BREMEN 1E	KS	1.38	1.38
TESK1	TESCOTT	KS	1.38	1.38
CONK1	CONCORDIA 1W	KS	1.36E	1.37
UIN	QUINCY	IL	1.36	1.37
SCDK1	SCANDIA	KS	1.36E	1.37
FKFK1	FRANKFORT,BLACK VERM	KS	1.35E	1.36
SLN	SALINA	KS	1.32	1.33
BARK1	BARNES	KS	1.30E	1.30
LSXI4	LITTLE SIOUX 2NW	IA	1.30	1.30
SNDK1	SCANDIA, REPUBLICAN	KS	1.30E	1.30
EMMK1	EMMETT	KS	1.28E	1.28
FRKK1	FRANKFORT	KS	1.26E	1.26
HDYN1	HARDY, REPUBLICAN R	NE	1.26E	1.26
HARN1	HARDY	NE	1.25E	1.25
SRRN1	SUPERIOR 4E	NE	1.25	1.25
CNKK1	CONCORDIA, REPUB R	KS	1.22	1.23
ORNN1	ORLEANS 2W, REPUB R	NE	1.22	1.23
JMSK1	JAMESTOWN, BUFFALO C	KS	1.20E	1.21

NTAK1	NATOMA	KS	1.20E	1.21
NVZM7	NOVINGER, CHARITON R	MO	1.20E	1.21
STMN1	STAMFORD, SAPPA CR	NE	1.20E	1.21
WMAK1	WASHINGTON	KS	1.20	1.21
RHHM7	RICH HILL (DNR)	MO	1.19	1.20
SKTK1	STOCKTON 9N, BOW CR	KS	1.19E	1.20
MTRK1	MENTOR, SMOKY HILL R	KS	1.17E	1.17
NOVM7	NOVINGER	MO	1.17E	1.17
HANK1	HANOVER 4S	KS	1.16E	1.16
PLKK1	POMONA DAM GDDS	KS	1.16	1.16
QUEK1	QUENEMO 5NW	KS	1.16E	1.16
IRK	KIRKSVILLE	MO	1.15	1.15
SLNK1	SALINA, MULBERRY CR	KS	1.13	1.13
CTLK1	COURTLAND	KS	1.12	1.13
OSKK1	OSKALOOSA 4NE	KS	1.10E	1.11
BEVK1	BROOKVILLE	KS	1.09E	1.10
BKVK1	BROOKVILLE	KS	1.09E	1.10
ELWN1	ELWOOD 8S	NE	1.09	1.10
FABN1	FAIRBURY 5S	NE	1.09E	1.10
RIHM7	RICH HILL	MO	1.08E	1.09
WETK1	WETMORE	KS	1.08E	1.09
CENK1	CENTRALIA	KS	1.07E	1.08
CRLK1	CIRCLEVILLE 7SW	KS	1.06E	1.06
HOYK1	HOYT	KS	1.06E	1.06
UNGN1	UEHLING	NE	1.06	1.06
K87	HIAWATHA 5SSE	KS	1.05E	1.05
HUBN1	HUBBELL	NE	1.05	1.05
UHLN1	UEHLING	NE	1.04E	1.04

Kevin Grode, P.E.
Reservoir Regulation Team Lead
Missouri River Basin Water Management,
Northwestern Division, USACE
402.996.3870
402.996.3898 (fax)

Classification: UNCLASSIFIED
Caveats: NONE

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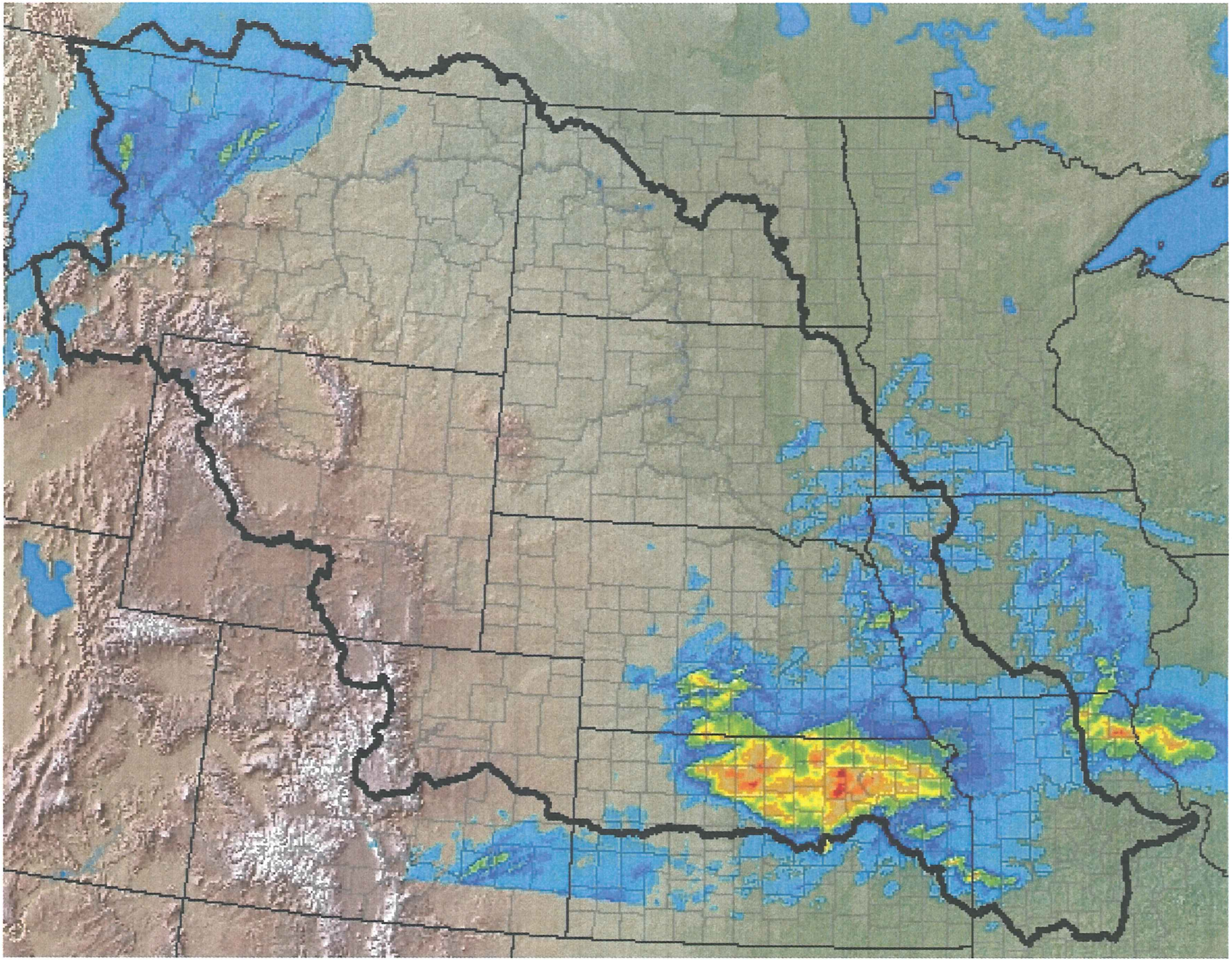
Caveats: NONE



MBRFC 24-Hour Gage Biased Estimated Rainfall (inches)

Ending: 6/2/2011 at 7:00 AM CDT

Created 6/2/2011 at 8:32 AM CDT

[redacted] NWO

From: Williamson, Eileen L NWO
Sent: Thursday, June 02, 2011 9:41 AM
To: DLL-CENWO-EOC CMT-ALL; MRJIC
Subject: June 2, 2011 - Riverwatch - Flood Fight Storyboard Daily Update (CMT) (UNCLASSIFIED)
Attachments: Flood_Fight_Storyboard_2JUN.docx

Classification: UNCLASSIFIED
Caveats: NONE

Attached is the Riverwatch Daily Update (The last page and the last section about equipment and personnel is FOUO

Missouri River Mainstem Reservoir Bulletin (Updated 2 Jun; 0845 CDT)

Fort Peck (In operation since 1940)

Midnight Elevation

* 2249.4 ft msl

* 24-hr Change (+0.5 ft)

Daily Avg. Inflow

* 73,000 cfs (1 Jun)

* 78,000 cfs (31 May)

Daily Avg. Release

* 9,600 cfs (1 Jun)

* 9,700 cfs (31 May)

Annual Flood Ctrl & Multi-Use Zone (Elevation)

* 2234 ft msl - 2246 ft msl

Exclusive Flood Ctrl Zone (Elevation)

* 2246 ft msl - 2250 ft msl

Top of Spillway Gates

* 2250 ft msl

Planned Scheduled Releases (Subject to Change)

* Peak release will be 50,000 cfs by no later than mid June.

* Reservoir will use several feet of surcharge storage above the exclusive flood control pool as spillway gates are raised.

Record Flow (Year)

* 35,000 cfs (1975)

Projected Record Flow (Date)

* 50,000 cfs (Mid June)

Garrison (In operation since 1955)

Midnight Elevation

* 1853.4 ft msl

* 24-hr Change (+0.1 ft)

Daily Avg. Inflow

* 131,000 cfs (1 Jun)

* 137,000 cfs (31 May)

Daily Avg. Release

* 91,300 cfs (1 Jun)

* 85,500 cfs (31 May)

Annual Flood Ctrl & Multi-Use Zone (Elevation)

* 1837.5 ft msl - 1850 ft msl

Exclusive Flood Ctrl Zone (Elevation)

* 1850 ft msl - 1854 ft msl

Top of Spillway Gates

* 1854 ft msl

River Stage (Bismarck)

* 16.08 (0715 CDT 2 Jun)

* Flood stage - 16 ft

* 15.83 ft (0715 CDT 1 Jun)

Planned Scheduled Releases (Subject to Change)

* Releases will be stepped up to 150,000 cfs by mid June.

* Reservoir will use several feet of surcharge storage above exclusive flood control pool as spillway gates are raised.

* First time in history, spillway gates will be used to pass floodwaters.

Record Flow (Year)

* 65,000 cfs (1975)

Projected Record Flow (Date)

* 150,000 cfs (Mid June)

Oahe(In operation since 1962)

Midnight Elevation

* 1618.9 ft msl

* 24-hr Change (+0.1 ft)

Daily Avg. Inflow

* 101,000 cfs (1 Jun)

* 103,000 cfs (31 May)

Daily Avg. Release

* 86,100 cfs (1 Jun)

* 86,300 cfs (31 May)

Annual Flood Ctrl & Multi-Use Zone (Elevation)

* 1607.5 ft msl - 1620 ft msl

Exclusive Flood Ctrl Zone (Elevation)

* 1617 ft msl - 1620 ft msl

Top of Spillway Gates

* 1620 ft msl

River Stage (Pierre)

* 15.39 (0715 CDT 1 Jun)

* Flood stage - 15 ft

* 15.13 ft (0715 CDT 1 Jun)

Planned Scheduled Releases (Subject to Change)

* Releases will be stepped up to 150,000 cfs by mid June.

* Reservoir will peak within a foot of the top of the spillway gates at 1619 feet.

Record Flow (Year)

* 59,000 cfs (1997)

Projected Record Flow (Date)

* 150,000 cfs (Mid June)

Big Bend (In operation since 1964)

Midnight Elevation

* 1419.5 ft msl

* 24-hr Change (+0.5 ft)

Daily Avg. Inflow

* 82,000 cfs (1 Jun)

* 83,000 cfs (31 May)

Daily Avg. Release

* 69,500 cfs (1 Jun)

* 83,900 cfs (31 May)

Annual Flood Ctrl & Multi-Use Zone (Elevation)

* 1420 ft msl - 1423 ft msl

Exclusive Flood Ctrl Zone (Elevation)

* 1422 ft msl - 1423 ft msl

Top of Spillway Gates

* 1423 ft msl

Planned Scheduled Releases (Subject to Change)

* Releases will be stepped up to 150,000 cfs by mid June.

* Reservoir will remain essentially level at 1420 feet.

Record Flow (Date)

* 74,000 cfs (1997)

Projected Record Flow (Date)

* 150,000 cfs (Mid June)

Fort Randall (In operation since 1953)

Midnight Elevation

* 1360.0 ft msl

* 24-hr Change (+0.1 ft)

Daily Avg. Inflow

* 86,000 cfs (1 Jun)

* 94,000 cfs (31 May)

Daily Avg. Release

* 79,900 cfs (1 Jun)

* 76,600 cfs (31 May)

Annual Flood Ctrl & Multi-Use Zone (Elevation)

* 1350 ft msl - 1375 ft msl

Exclusive Flood Ctrl Zone (Elevation)

* 1365 ft msl - 1375 ft msl

Top of Spillway Gates

* 1375 ft msl

Planned Scheduled Releases (Subject to Change)

* Releases will be stepped up to 150,000 cfs by mid June.

Record Flow (Date)

* 67,000 cfs (1997)

Projected Record Flow (Date)

* 150,000 cfs (Mid June)

Gavins Point (In operation since 1955)

Midnight Elevation

* 1206.5 ft msl

* 24-hr Change (0.0 ft)

Daily Avg. Inflow

* 81,000 cfs (1 Jun)

* 76,000 cfs (31 May)

Daily Avg. Release

* 80,000 cfs (1 Jun)

* 77,000 cfs (31 May)

Annual Flood Ctrl & Multi-Use Zone (Elevation)

* 1204.5 ft msl - 1210 ft msl

Exclusive Flood Ctrl Zone (Elevation)

* 1208 ft msl - 1210 ft msl

Top of Spillway Gates

* 1210 ft msl

Planned Scheduled Releases (Subject to Change)

* Releases will be stepped up to 150,000 cfs by mid June.

Record Flow (Date)

* 70,000 cfs (1997)

Projected Record Flow (Date)

* 150,000 cfs (Mid June)

Source of information: http://www.nwd-mr.usace.army.mil/rcc

Missouri River Mainstem 24-Hour Forecast Conditions (Updated 2 Jun; 0845 CDT)

****

24-hr forecast (Glasgow, MT)

Today: A 40 percent chance of showers and thunderstorms. Partly sunny, with a high near 74. East wind between 14 and 17 mph becoming light. Winds could gust as high as 24 mph.

Tonight: A chance of showers and thunderstorms. Mostly cloudy, with a low around 49. West southwest wind between 16 and 18 mph, with gusts as high as 25 mph. Chance of precipitation is 30%.

Friday: A chance of showers, with thunderstorms also possible after noon. Mostly cloudy, with a high near 64. Breezy, with a west wind around 25 mph, with gusts as high as 36 mph. Chance of precipitation is 50%.

****

24-hr forecast (Riverdale, ND)

Today: A 50 percent chance of showers and thunderstorms. Some of the storms could be severe. Partly sunny, with a high near 81. Breezy, with a south wind between 17 and 20 mph, with gusts as high as 28 mph.

Tonight: A 30 percent chance of showers and thunderstorms. Mostly cloudy, with a low around 53. West wind between 10 and 16 mph, with gusts as high as 23 mph.

Friday: Mostly sunny, with a high near 67. Breezy, with a west wind 14 to 17 mph increasing to between 25 and 28 mph. Winds could gust as high as 39 mph.

****

24-hr forecast (Washburn, ND)

Today: A 50 percent chance of showers and thunderstorms. Some of the storms could be severe. Mostly cloudy, with a high near 82. Breezy, with a south wind between 17 and 21 mph, with gusts as high as 29 mph.

Tonight: A 30 percent chance of showers and thunderstorms. Mostly cloudy, with a low around 54. South wind 9 to 17 mph becoming west. Winds could gust as high as 24 mph.

Friday: Mostly sunny, with a high near 68. Breezy, with a west wind 13 to 16 mph increasing to between 25 and 28 mph. Winds could gust as high as 38 mph.

****

24-hr forecast (Bismarck/Mandan, ND)

Today: A 40 percent chance of showers and thunderstorms, mainly before 1pm. Some of the storms could be severe. Mostly cloudy, with a high near 86. Breezy, with a south wind between 16 and 20 mph, with gusts as high as 28 mph.

Tonight: A 30 percent chance of showers and thunderstorms, mainly before 1am. Some of the storms could be severe. Mostly cloudy, with a low around 55. South wind 8 to 15 mph becoming west. Winds could gust as high as 22 mph.

Friday: Mostly sunny, with a high near 69. Breezy, with a west wind 11 to 14 mph increasing to between 21 and 24 mph. Winds could gust as high as 34 mph.

****

24-hr forecast (Pierre, SD)

Today: Mostly sunny and hot, with a high near 92. Breezy, with a south southeast wind between 17 and 24 mph, with gusts as high as 33 mph.

Tonight: A 30 percent chance of showers and thunderstorms before 1am. Partly cloudy, with a low around 58. South wind 8 to 13 mph becoming north northwest.

Friday: Mostly sunny, with a high near 78. West northwest wind around 16 mph.

****

24-hr forecast (Ft. Pierre)

Today: Mostly sunny and hot, with a high near 92. Breezy, with a south southeast wind between 17 and 23 mph, with gusts as high as 32 mph.

Tonight: A 30 percent chance of showers and thunderstorms before 1am. Partly cloudy, with a low around 58. South southwest wind 7 to 13 mph becoming north northwest.

Friday: Mostly sunny, with a high near 78. West northwest wind around 16 mph.

****

24-hr forecast (Lower Brule)

Today: Mostly sunny and hot, with a high near 92. Breezy, with a south southeast wind between 21 and 28 mph, with gusts as high as 38 mph.

Tonight: A 30 percent chance of showers and thunderstorms, mainly before 1am. Partly cloudy, with a low around 60. South wind 6 to 16 mph becoming west northwest.

Friday: Mostly sunny, with a high near 78. West northwest wind between 14 and 18 mph.

****

24-hr forecast (Chamberlain, SD)

Today: Partly sunny, with a high near 92. Breezy, with a south southeast wind between 18 and 22 mph, with gusts as high as 31 mph.

Tonight: A slight chance of showers and thunderstorms before 9pm, then a chance of thunderstorms between 9pm and 4am, then a slight chance of showers and thunderstorms after 4am. Some storms could be severe, with large hail and damaging winds. Mostly cloudy, with a low around 62. South southeast wind 8 to 17 mph becoming west northwest. Winds could gust as high as 26 mph. Chance of precipitation is 50%.

Friday: A slight chance of showers and thunderstorms before 7am. Mostly sunny, with a high near 78. Breezy, with a west northwest wind between 15 and 20 mph, with gusts as high as 28 mph. Chance of precipitation is 10%.

****

24-hr forecast (Yankton, SD)

Today: Partly sunny, with a high near 90. Breezy, with a south southeast wind between 16 and 24 mph, with gusts as high as 32 mph.

Tonight: A slight chance of showers and thunderstorms after 4am. Mostly cloudy, with a low around 71. Breezy, with a south wind between 15 and 22 mph, with gusts as high as 31 mph. Chance of precipitation is 20%.

Friday: A slight chance of showers and thunderstorms before 7am. Partly sunny, with a high near 79. Southwest wind 11 to 16 mph becoming northwest. Chance of precipitation is 10%.

****

24-hr forecast (Sioux City, IA)

Today: Partly sunny, with a high near 89. Breezy, with a south wind between 15 and 24 mph, with gusts as high as 33 mph.

Tonight: Partly cloudy, with a low around 72. Breezy, with a south wind between 14 and 22 mph, with gusts as high as 31 mph.

Friday: Mostly sunny, with a high near 83. South wind 14 to 16 mph becoming west.

****

24-hr forecast (Omaha, NE)

Today: Mostly sunny, with a high near 91. Breezy, with a south wind between 14 and 24 mph, with gusts as high as 33 mph.

Tonight: Mostly clear, with a low around 70. Breezy, with a south wind between 15 and 21 mph, with gusts as high as 29 mph.

Friday: Mostly sunny, with a high near 90. South southwest wind between 13 and 16 mph, with gusts as high as 24 mph.

Source of information: http://www.weather.gov/

Internet: http://www.nwo.usace.army.mil

Facebook: http://www.facebook.com/OmahaUSACE

Twitter: http://www.twitter.com/OmahaUSACE

YouTube: http://www.youtube.com/OmahaUSACE

Flickr: http://www.flickr.com/photos/omahausace

INFORMATION BELOW IS FOUO

Missouri River Flooding (Logistics) (Updated 2 Jun 11)

Personnel Deployed

* 4 (Glasgow, MT)
* 9 (Lander, WY)
* 16 (Bismarck, ND)
* 6 (Fort Yates, ND)
* 4 (Williston, ND)
* 1 (Minot, ND)
* 8 (Pierre, SD)
* 14 (Sioux City, IA)
* 2 (Missouri River Survey)
* 1 (Decatur, NE)
* 3 (Offutt, NE)
* 12 (North Platte, NE)
* 1 (Kansas City, MO)

Equipment Deployed

HESCO

* Issued: 28,040 LF

* On Hand: 5610 (4840-4' and 770 LF of 3')

* Projected Outstanding Requirements: 52,000 LF

* Currently working on: 26,000 LF from Louisiana and 30,000 LF via vendor

Poly Rolls

* Issued: 1384 rolls

* On Hand: 0 rolls

* Projected Outstanding Requirements: 1500 rolls

* Currently working with District Contracting. 1000 rolls shipping from contractor 7 Jun 2011

Pumps

* Issued: 12 pumps

* On Hand: ZERO

* Projected Outstanding Requirements: 12 pumps

* Currently working with District Contracting for 12"-16" pumps

Additional Supplies due in:

* 1280 LF of RDFW from LA

* 1K ea 2K sandbags from LA

Sandbags:

* Issued: 7.35 M

* On Hand: 466,000

* Projected Outstanding Requirements: 15.25 M

* Currently working on: 2 M from vendors and CENWS

* Working requisitions with District Contracting

* 1st Shipment of 500K arrived 1 June

* 700K due in 8 June

Source of information: CMT Brief (1 Jun 11)

Classification: UNCLASSIFIED
Caveats: NONE

US Army Corps of Engineers
Omaha District

Missouri River Mainstem Reservoir Bulletin (Updated 1 Jun; 0845 CDT)

Fort Peck (In operation since 1940)	Garrison (In operation since 1955)	Oahe (In operation since 1962)	Big Bend (In operation since 1964)	Fort Randall (In operation since 1953)	Gavins Point (In operation since 1955)
Midnight Elevation ▪ 2248.9 ft msl ▪ 24-hr Change (+0.5 ft) ***Daily Avg. Inflow*** ▪ ▪ 78,000 cfs (31 May) ***Daily Avg. Release*** ▪ ▪ 9,700 cfs (31 May) ***Annual Flood Ctrl & Multi-Use Zone (Elevation)*** ▪ 2234 ft msl – 2246 ft msl ***Exclusive Flood Ctrl Zone (Elevation)*** ▪ 2246 ft msl – 2250 ft msl ***Top of Spillway Gates*** ▪ 2250 ft msl ***Planned Scheduled Releases (Subject to Change)*** • Peak release will be 50,000 cfs by no later than mid June. • Reservoir will use several feet of surcharge storage above the exclusive flood control pool as spillway gates are raised. ***Record Flow (Year)*** ▪ 35,000 cfs (1975) ***Projected Record Flow (Date)*** ▪ 50,000 cfs (6 June)	***Midnight Elevation*** ▪ 1853.3 ft msl ▪ 24-hr Change (+0.2 ft) ***Daily Avg. Inflow*** ▪ 137,000 cfs (31 May) ▪ 150,000 cfs (30 May) ***Daily Avg. Release*** ▪ 85,500 cfs (31 May) ▪ 83,800 cfs (30 May) ***Annual Flood Ctrl & Multi-Use Zone (Elevation)*** ▪ 1837.5 ft msl – 1850 ft msl ***Exclusive Flood Ctrl Zone (Elevation)*** ▪ 1850 ft msl – 1854 ft msl ***Top of Spillway Gates*** ▪ 1854 ft msl ***River Stage (Bismarck)*** ▪ 15.83 ft (0715 CDT 6/1) ▪ Flood stage – 16 ft ▪ 15.83 ft (0715 CDT 5/31) ***Planned Scheduled Releases (Subject to Change)*** • Releases will be stepped up to 150,000 cfs by mid June. • Reservoir will use several feet of surcharge storage above exclusive flood control pool as spillway gates are raised. • First time in history, spillway gates will be used to pass floodwaters. ***Record Flow (Year)*** ▪ 65,000 cfs (1975) ***Projected Record Flow (Date)*** ▪ 150,000 cfs (Mid June)	***Midnight Elevation*** ▪ 1618.8 ft msl ▪ 24-hr Change (+0.2 ft) ***Daily Avg. Inflow*** ▪ 103,000 cfs (31 May) ▪ 126,000 cfs (30 May) ***Daily Avg. Release*** ▪ 86,300 cfs (31 May) ▪ 86,200 cfs (30 May) ***Annual Flood Ctrl & Multi-Use Zone (Elevation)*** ▪ 1607.5 ft msl – 1620 ft msl ***Exclusive Flood Ctrl Zone (Elevation)*** ▪ 1617 ft msl – 1620 ft msl ***Top of Spillway Gates*** ▪ 1620 ft msl ***River Stage (Pierre)*** ▪ 15.13 ft (0715 CDT 6/1) ▪ Flood stage – 15 ft ▪ 15.01 ft (0700 CDT 5/31) ***Planned Scheduled Releases (Subject to Change)*** • Releases will be stepped up to 150,000 cfs by mid June. • Reservoir will peak within a foot of the top of the spillway gates at 1619 feet. ***Record Flow (Year)*** ▪ 59,000 cfs (1997) ***Projected Record Flow (Date)*** ▪ 150,000 cfs (Mid June)	***Midnight Elevation*** ▪ 1419.0 ft msl ▪ 24-hr Change (-0.2 ft) ***Daily Avg. Inflow*** ▪ 83,000 cfs (31 May) ▪ 82,000 cfs (30 May) ***Daily Avg. Release*** ▪ 83,900 cfs (31 May) ▪ 82,400 cfs (30 May) ***Annual Flood Ctrl & Multi-Use Zone (Elevation)*** ▪ 1420 ft msl – 1423 ft msl ***Exclusive Flood Ctrl Zone (Elevation)*** ▪ 1422 ft msl – 1423 ft msl ***Top of Spillway Gates*** ▪ 1423 ft msl ***Planned Scheduled Releases (Subject to Change)*** • Releases will be stepped up to 150,000 cfs by mid June. • Reservoir will remain essentially level at 1420 feet. ***Record Flow (Date)*** ▪ 74,000 cfs (1997) ***Projected Record Flow (Date)*** ▪ 150,000 cfs (Mid June)	***Midnight Elevation*** ▪ 1359.9 ft msl ▪ 24-hr Change (+0.4 ft) ***Daily Avg. Inflow*** ▪ 94,000 cfs (31 May) ▪ 100,000 cfs (30 May) ***Daily Avg. Release*** ▪ 76,600 cfs (31 May) ▪ 72,900 cfs (30 May) ***Annual Flood Ctrl & Multi-Use Zone (Elevation)*** ▪ 1350 ft msl – 1375 ft msl ***Exclusive Flood Ctrl Zone (Elevation)*** ▪ 1365 ft msl – 1375 ft msl ***Top of Spillway Gates*** ▪ 1375 ft msl ***Planned Scheduled Releases (Subject to Change)*** • Releases will be stepped up to 150,000 cfs by mid June. ***Record Flow (Date)*** ▪ 67,000 cfs (1997) ***Projected Record Flow (Date)*** ▪ 150,000 cfs (Mid June)	***Midnight Elevation*** ▪ 1206.4 ft msl ▪ 24-hr Change (-0.2 ft) ***Daily Avg. Inflow*** ▪ 76,000 cfs (31 May) ▪ 72,000 cfs (30 May) ***Daily Avg. Release*** ▪ 77,000 cfs (31 May) ▪ 74,000 cfs (30 May) ***Annual Flood Ctrl & Multi-Use Zone (Elevation)*** ▪ 1204.5 ft msl – 1210 ft msl ***Exclusive Flood Ctrl Zone (Elevation)*** ▪ 1208 ft msl – 1210 ft msl ***Top of Spillway Gates*** ▪ 1210 ft msl ***Planned Scheduled Releases (Subject to Change)*** • Releases will be stepped up to 150,000 cfs by mid June. ***Record Flow (Date)*** ▪ 70,000 cfs (1997) ***Projected Record Flow (Date)*** ▪ 150,000 cfs (Mid June)

Source of information: http://www.nwd-mr.usace.army.mil/rcc/

US Army Corps of Engineers
Omaha District

Missouri River Mainstem 24-Hour Forecast Conditions (Updated 1 Jun; 0845 CDT)

Fort Peck	Garrison	Oahe	Big Bend	Fort Randall	Gavins Point
24-hr forecast (Glasgow, MT) **Today:** Mostly sunny, with a high near 71. Breezy, with a east southeast wind 11 to 14 mph increasing to between 21 and 24 mph. Winds could gust as high as 34 mph. **Tonight:** A 20 percent chance of showers after midnight. Partly cloudy, with a low around 54. Breezy, with a east southeast wind between 18 and 24 mph, with gusts as high as 33 mph. **Thursday:** A 40 percent chance of showers and thunderstorms. Some of the storms could produce gusty winds. Partly sunny, with a high near 70. East wind 15 to 18 mph becoming south southwest 5 to 8 mph. Winds could gust as high as 25 mph.	***24-hr forecast (Bismarck, ND)*** **Today:** Sunny, with a high near 72. Light wind becoming southeast between 10 and 13 mph. **Tonight:** A 40 percent chance of showers and thunderstorms after 1am. Partly cloudy, with a low around 56. Southeast wind between 13 and 17 mph, with gusts as high as 24 mph. **Thursday:** A 20 percent chance of showers and thunderstorms before 1pm. Partly sunny, with a high near 84. Southeast wind between 16 and 18 mph, with gusts as high as 25 mph. ***24-hr forecast (Riverdale, ND)*** **Today:** Sunny, with a high near 71. West wind 5 to 11 mph becoming southeast. **Tonight:** A 40 percent chance of showers and thunderstorms after 1am. Partly cloudy, with a low around 54. Southeast wind between 13 and 16 mph, with gusts as high as 23 mph. **Thursday:** A 30 percent chance of showers and thunderstorms before 1pm. Mostly cloudy, with a high near 80. Breezy, with a southeast wind between 17 and 20 mph, with gusts as high as 28 mph. New rainfall amounts between a tenth and quarter of an inch, except higher amounts possible in thunderstorms.	***24-hr forecast (Pierre, SD)*** **Today:** Sunny, with a high near 77. Breezy, with a southeast wind between 10 and 20 mph. **Tonight:** A 30 percent chance of showers and thunderstorms, mainly before 1am. Partly cloudy, with a low around 62. Breezy, with a east southeast wind between 15 and 20 mph. **Thursday:** Mostly sunny, with a high near 88. Breezy, with a south southeast wind between 14 and 20 mph. ***24-hr forecast (Ft. Pierre)*** **Today:** Sunny, with a high near 77. Breezy, with a east southeast wind between 10 and 20 mph. **Tonight:** A 30 percent chance of showers and thunderstorms, mainly before 1am. Partly cloudy, with a low around 62. Breezy, with a east southeast wind between 14 and 20 mph. **Thursday:** Mostly sunny, with a high near 89. South southeast wind between 13 and 18 mph.	***24-hr forecast (Pierre, SD)*** **Today:** Sunny, with a high near 77. Breezy, with a southeast wind between 10 and 20 mph. **Tonight:** A 30 percent chance of showers and thunderstorms, mainly before 1am. Partly cloudy, with a low around 62. Breezy, with a east southeast wind between 15 and 20 mph. **Thursday:** Mostly sunny, with a high near 88. Breezy, with a south southeast wind between 14 and 20 mph. ***24-hr forecast (Ft. Pierre)*** **Today:** Sunny, with a high near 77. Breezy, with a east southeast wind between 10 and 20 mph. **Tonight:** A 30 percent chance of showers and thunderstorms, mainly before 1am. Partly cloudy, with a low around 62. Breezy, with a east southeast wind between 14 and 20 mph. **Thursday:** Mostly sunny, with a high near 89. South southeast wind between 13 and 18 mph.	***24-hr forecast (Chamberlain, SD)*** **Today:** Mostly sunny, with a high near 76. East southeast wind between 11 and 17 mph, with gusts as high as 26 mph. **Tonight:** A chance of showers and thunderstorms. Increasing clouds, with a low around 64. East southeast wind between 14 and 18 mph, with gusts as high as 28 mph. Chance of precipitation is 50%. **Thursday:** Partly sunny, with a high near 90. Breezy, with a south southeast wind 17 to 20 mph increasing to between 25 and 28 mph. Winds could gust as high as 37 mph.	***24-hr forecast (Yankton, SD)*** **Today:** Mostly sunny, with a high near 78. East southeast wind between 6 and 15 mph. **Tonight:** A chance of showers and thunderstorms. Increasing clouds, with a low around 66. Southeast wind between 8 and 13 mph. Chance of precipitation is 50%. **Thursday:** Partly sunny, with a high near 89. Breezy, with a south southeast wind 15 to 18 mph increasing to between 25 and 28 mph. Winds could gust as high as 37 mph. ***24-hr forecast (Sioux City, IA)*** **Today:** Mostly sunny, with a high near 80. Southeast wind between 7 and 16 mph. **Tonight:** A chance of showers and thunderstorms. Mostly cloudy, with a low around 66. South southeast wind between 9 and 13 mph. Chance of precipitation is 50%. **Thursday:** A slight chance of showers and thunderstorms before 1pm. Partly sunny, with a high near 88. Breezy, with a south southeast wind 13 to 16 mph increasing to between 22 and 25 mph. Winds could gust as high as 34 mph. Chance of precipitation is 20%.

Source of information: http://www.weather.gov/

US Army Corps of Engineers
Omaha District

Missouri River Mainstem 24-Hour Forecast Conditions (Updated 1 Jun; 0845 CDT)

Fort Peck	Garrison	Oahe	Big Bend	Fort Randall	Gavins Point
	24-hr forecast (Washburn, ND) **Today:** Sunny, with a high near 71. West wind 5 to 11 mph becoming southeast. **Tonight:** A 40 percent chance of showers and thunderstorms after 1 am. Partly cloudy, with a low around 54. Southeast wind between 13 and 17 mph, with gusts as high as 24 mph. **Thursday:** A 30 percent chance of showers and thunderstorms before 1pm. Mostly cloudy, with a high near 82. Breezy, with a southeast wind between 17 and 20 mph, with gusts as high as 28 mph. New rainfall amounts between a tenth and quarter of an inch, except higher amounts possible in thunderstorms. ***24-hr forecast (Mandan)*** **Today:** Sunny, with a high near 72. Light wind becoming southeast between 10 and 13 mph. **Tonight:** A 40 percent chance of showers and thunderstorms after 1am. Partly cloudy, with a low around 56. Southeast wind between 14 and 17 mph, with gusts as high as 24 mph. **Thursday:** A 20 percent chance of showers and thunderstorms before 1pm. Partly sunny, with a high near 84. Breezy, with a southeast wind between 16 and 20 mph, with gusts as high as 28 mph.	***24-hr forecast (Lower Brule)*** **Today:** Mostly sunny, with a high near 77. Breezy, with a east southeast wind between 10 and 20 mph. **Tonight:** A 30 percent chance of showers and thunderstorms. Mostly cloudy, with a low around 63. Breezy, with a east southeast wind between 17 and 20 mph. **Thursday:** Partly sunny and hot, with a high near 91. Breezy, with a south southeast wind between 15 and 22 mph, with gusts as high as 31 mph.	***24-hr forecast (Lower Brule)*** **Today:** Mostly sunny, with a high near 77. Breezy, with a east southeast wind between 10 and 20 mph. **Tonight:** A 30 percent chance of showers and thunderstorms. Mostly cloudy, with a low around 63. Breezy, with a east southeast wind between 17 and 20 mph. **Thursday:** Partly sunny and hot, with a high near 91. Breezy, with a south southeast wind between 15 and 22 mph, with gusts as high as 31 mph.		

Source of information: http://www.weather.gov/

Internet: http://www.nwo.usace.army.mil/ Facebook: http://www.facebook.com/OmahaUSACE Twitter: http://www.twitter.com/OmahaUSACE YouTube: http://www.youtube.com/OmahaUSACE Flickr:http://www.flickr.com/photos/omahausace/

US Army Corps of Engineers
Omaha District

Missouri River Flooding (Logistics) (Updated 1 Jun 11)

Personnel Deployed

- 3 (Glasgow, MT)
- 1 (Elk Mountain, WY)
- 19 (Bismarck, ND)
- 3 (Fort Yates, ND)
- 4 (Williston, ND)
- 10 (Pierre, SD)
- 7 (Sioux City, IA)
- 2 (Missouri River Survey)
- 8 (North Platte, NE)
- 2 (Niobrara, NE)
- 1 (Kansas City, MO)

Equipment Deployed

Pumps:
6" - 1 Deployed
10" - 3 Deployed
12" - 6 Deployed
16" - 7 Deployed

Manual Sandbag Filling machines 1500/hour production capability - 1 Deployed

Expedient Flood Fight Products:
Hesco - 28,044 LF Deployed
Rapid Deployable Flood Wall - 500 LF Deployed

Sandbags:
Approximately 8.5 million sandbags have been shipped thus far from CENWO and other districts/locations.
Approximately 1.8 million sandbags due in from a vendor.
Approximately 3.6 million sandbags being picked up and in transit between June 1 and June 2 from Vicksburg MS and Morgan City LA.
650 sandbags coming from CENWS
This number changes constantly due to requirements.
Approximately 2,245,000 Issued From CENWO allotment

Source of information: CMT Brief (31 May 11)

[redacted] NWO

From: Denholm, Ann M NWD02
Sent: Thursday, June 02, 2011 9:27 AM
To: DLL-CENWD-PDR; [redacted] NWO
Subject: Thur Rain Report

```
1NWSRFS FORECAST SYSTEM - PROGRAM PPDUTIL  (VERSION: ob8.1      - 03/20/07)   USER=MBRFC
DATE=Jun  2, 2011 - 14:02:15
0

 >>>>>>>> PAGESIZE 60
 >>>>>>>> DUMPPP24 * *
0**NOTE** DATA FOR THE PERIOD 06/02/2011-12Z    THROUGH 06/02/2011-12Z    WILL BE PROCESSED.
          QUANTITY DESC (0.01)
          OBSONLY
          END
0PP24 DATA FOR 06/02/11-12Z    THRU 06/02/11-12Z
0      - = MISSING VALUE OR SUM      E = ESTIMATED VALUE      P = PARTIAL SUM
0STATION                                                    PERIOD
 ID        DESCRIPTION            STATE     06/02     SUM
 --------  ---------------------  -----     -----     ------
 WKEK1     WAKEFIELD 4W           KS         8.65       8.65
 CLAK1     CLAY CENTER #1         KS         7.22E      7.22
 CYCK1     CLAY CENTER, REPUB R   KS         7.22E      7.22
 CCRK1     CLAY CENTER            KS         6.88E      6.89
 FCTK1     FACT 3W                KS         6.50       6.51
 MTTK1     TUTTLE CREEK DAM       KS         5.76       5.77
 RDHK1     RANDOLPH 4WNW          KS         5.41E      5.41
 RDPK1     RANDOLPH, FANCY CR     KS         5.40E      5.41
 LGFK1     LONGFORD               KS         5.31E      5.32
 CUBK1     CUBA                   KS         5.19       5.20
 IONK1     IONIA                  KS         4.59       4.60
 AGNK1     AGENDA                 KS         4.50       4.51
 PRLK1     PARALLEL               KS         4.28E      4.29
 MNTK1     MANHATTAN 4N           KS         4.11       4.12
 CFTK1     CLIFTON                KS         3.95       3.96
 MHTK1     MANHATTAN              KS         3.81       3.82
 CLDK1     CLYDE, ELK CR          KS         3.77E      3.78
 MHKK1     MANHATTAN, KANSAS R    KS         3.76E      3.77
 CYDK1     CLYDE                  KS         3.75E      3.76
 MLTK1     MILTONVALE             KS         3.75E      3.76
 SYLK1     SYLVAN GROVE 1NE       KS         3.70       3.71
 GLNK1     GLEN ELDER DAM         KS         3.61E      3.62
 CAWK1     CAWKER CITY            KS         3.50E      3.51
 CHPK1     CHAPMAN, CHAPMAN CR    KS         3.47E      3.48
 BLVK1     BELLEVILLE             KS         3.45E      3.46
 GLDK1     GLEN ELDER 2SE         KS         3.40E      3.41
 LBNK1     LEBANON                KS         3.38       3.39
 MLFK1     MILFORD DAM            KS         3.38E      3.39
 HNTK1     HUNTER                 KS         3.24       3.25
 SMCK1     SMITH CENTER           KS         3.21       3.22
 ATNK1     ALTON 2SW              KS         3.10       3.11
 BELK1     BELOIT                 KS         3.08       3.09
 CPMK1     CHAPMAN                KS         3.08       3.09
 JWLK1     JEWELL                 KS         2.97E      2.98
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FRYK1	FT RILEY	KS	2.96E	2.97
3JC	JUNCTION CITY	KS	2.95E	2.96
JUCK1	JUNCTION CITY 4SSW	KS	2.91E	2.92
DWNK1	DOWNS	KS	2.89E	2.90
FRI	FT RILEY	KS	2.87	2.88
FTRK1	FT RILEY, KANSAS R	KS	2.87E	2.88
WAMK1	WAMEGO 4W	KS	2.84	2.85
EFFK1	EFFINGHAM	KS	2.82	2.83
HARK1	HARLAN	KS	2.80E	2.81
ETPK1	ENTERPRISE	KS	2.76	2.77
ENTK1	ENTERPRISE	KS	2.76E	2.77
MHK	MANHATTAN MUNICPL AP	KS	2.76	2.77
ABLK1	ABILENE	KS	2.69E	2.70
MNHK1	MANHATTAN 6S	KS	2.69E	2.70

1NWSRFS FORECAST SYSTEM - PROGRAM PPDUTIL (VERSION: ob8.1 - 03/20/07) USER=MBRFC
DATE=Jun 2, 2011 - 14:02:15
0

0STATION ID	DESCRIPTION	STATE	06/02	PERIOD SUM
MSCK1	MUSCOTAH, DELAWARE R	KS	2.69	2.70
KSMC2	BELOIT 8ESE	KS	2.67E	2.68
SIMK1	SIMPSON, SOLOMON R	KS	2.66	2.67
PTIK1	PORTIS, NF SOLOMON R	KS	2.54E	2.55
WMGK1	WAMEGO #2, KANSAS R	KS	2.53E	2.54
GLCK1	GLASCO	KS	2.48E	2.49
WGOK1	WAMEGO	KS	2.47E	2.48
GLAK1	GLASCO, SOLOMON R	KS	2.45E	2.46
MANK1	MANKATO	KS	2.45	2.46
LINK1	LINCOLN, SALINE R	KS	2.40	2.41
BADK1	BARNARD 7W	KS	2.37E	2.38
WDBK1	WOODBINE, LYONS CR	KS	2.34E	2.35
LOUK1	LOUISVILLE 5NE	KS	2.26E	2.27
FSTK1	FOSTORIA 7NW	KS	2.20	2.21
WODK1	WOODSTON, SF SOLOMON	KS	2.14	2.15
WLSK1	WILSON DAM	KS	2.13E	2.14
WSRK1	WILSON DAM, SALINE R	KS	2.12	2.13
VLYK1	VALLEY FALLS 3SW	KS	2.10	2.11
HADK1	HADDAM	KS	2.07	2.08
AURK1	AURORA	KS	1.97E	1.98
BRNK1	BARNARD, SALT CR	KS	1.97	1.98
MNPK1	MINNEAPOLIS	KS	1.97	1.98
MPSK1	MINNEAPOLIS, SOLOMON	KS	1.97E	1.98
OSBK1	OSBORNE, SOLOMON R	KS	1.94	1.95
NLSK1	NILES, SOLOMON R	KS	1.91E	1.91
HLTK1	HOLTON	KS	1.90	1.90
LLLK1	LILLIS	KS	1.82	1.83
WMLK1	WESTMORELAND	KS	1.82E	1.83
COVK1	COVERT	KS	1.80	1.80
HRTK1	HORTON	KS	1.79E	1.79
ADAK1	ADA 3ESE, SALT CR	KS	1.75E	1.75
NAPN1	NAPONEE, TURKEY CR	NE	1.71E	1.72
STKK1	STOCKTON 1E	KS	1.71E	1.72
MRYK1	MARYSVILLE, BIG BLUE	KS	1.65	1.65
MRVK1	MARYSVILLE	KS	1.63E	1.63
ESBK1	ESBON 7N	KS	1.62E	1.63
FKNN1	FRANKLIN, CENTER CR	NE	1.62E	1.63

BLNK1	BLAINE	KS	1.61E	1.62
LURK1	LURAY	KS	1.61E	1.62
PTRK1	POTTER, STRANGER CR	KS	1.57	1.58
RVRN1	RIVERTON, REPUBLICAN	NE	1.57E	1.58
RVTN1	RIVERTON, THOMPSON C	NE	1.57	1.58
HUSK1	HUSCHER	KS	1.55E	1.55
GDEK1	GLADE, N FK SOLOMON	KS	1.53	1.53
BURK1	BURR OAK, WHITE ROCK	KS	1.50E	1.50
GUIN1	GUIDE ROCK, REPUB R	NE	1.50E	1.50
HOLK1	HOLTON, SOLDIER CR	KS	1.49E	1.50
BROK1	BURR OAK 1N	KS	1.48	1.49
ONGK1	ONAGA 12 SSW	KS	1.47E	1.48
COZN1	COZAD 2S, PLATTE R	NE	1.46	1.47
TQE	TEKAMAH	NE	1.44	1.45
NCMK1	NEW CAMBRIA 1SE	KS	1.43E	1.43
PHIK1	PHILLIPSBURG #2	KS	1.43E	1.43

1NWSRFS FORECAST SYSTEM - PROGRAM PPDUTIL (VERSION: ob8.1 - 03/20/07) USER=MBRFC
DATE=Jun 2, 2011 - 14:02:15
0

0STATION ID	DESCRIPTION	STATE	06/02	PERIOD SUM
PHLK1	PHILLIPSBURG 1SSE	KS	1.43E	1.43
CNK	CONCORDIA	KS	1.42	1.42
GDRN1	GUIDE ROCK	NE	1.42E	1.42
SMOK1	SMOLAN 1NE	KS	1.42	1.42
KRKM7	KIRKSVILLE (KIRX)	MO	1.39	1.39
LOVK1	LOVEWELL DAM	KS	1.39E	1.39
TSCK1	TESCOTT, SALINE R	KS	1.39E	1.39
BRMK1	BREMEN 1E	KS	1.38	1.38
TESK1	TESCOTT	KS	1.38	1.38
CONK1	CONCORDIA 1W	KS	1.36E	1.37
UIN	QUINCY	IL	1.36	1.37
SCDK1	SCANDIA	KS	1.36E	1.37
FKFK1	FRANKFORT,BLACK VERM	KS	1.35E	1.36
SLN	SALINA	KS	1.32	1.33
BARK1	BARNES	KS	1.30E	1.30
LSXI4	LITTLE SIOUX 2NW	IA	1.30	1.30
SNDK1	SCANDIA, REPUBLICAN	KS	1.30E	1.30
EMMK1	EMMETT	KS	1.28E	1.28
FRKK1	FRANKFORT	KS	1.26E	1.26
HDYN1	HARDY, REPUBLICAN R	NE	1.26E	1.26
HARN1	HARDY	NE	1.25E	1.25
SRRN1	SUPERIOR 4E	NE	1.25	1.25
CNKK1	CONCORDIA, REPUB R	KS	1.22	1.23
ORNN1	ORLEANS 2W, REPUB R	NE	1.22	1.23
JMSK1	JAMESTOWN, BUFFALO C	KS	1.20E	1.21
NTAK1	NATOMA	KS	1.20E	1.21
NVZM7	NOVINGER, CHARITON R	MO	1.20E	1.21
STMN1	STAMFORD, SAPPA CR	NE	1.20E	1.21
WMAK1	WASHINGTON	KS	1.20	1.21
RHHM7	RICH HILL (DNR)	MO	1.19	1.20
SKTK1	STOCKTON 9N, BOW CR	KS	1.19E	1.20
MTRK1	MENTOR, SMOKY HILL R	KS	1.17E	1.17
NOVM7	NOVINGER	MO	1.17E	1.17
HANK1	HANOVER 4S	KS	1.16E	1.16
PLKK1	POMONA DAM GDDS	KS	1.16	1.16

QUEK1	QUENEMO 5NW	KS	1.16E	1.16
IRK	KIRKSVILLE	MO	1.15	1.15
SLNK1	SALINA, MULBERRY CR	KS	1.13	1.13
CTLK1	COURTLAND	KS	1.12	1.13
OSKK1	OSKALOOSA 4NE	KS	1.10E	1.11
BEVK1	BROOKVILLE	KS	1.09E	1.10
BKVK1	BROOKVILLE	KS	1.09E	1.10
ELWN1	ELWOOD 8S	NE	1.09	1.10
FABN1	FAIRBURY 5S	NE	1.09E	1.10
RIHM7	RICH HILL	MO	1.08E	1.09
WETK1	WETMORE	KS	1.08E	1.09
CENK1	CENTRALIA	KS	1.07E	1.08
CRLK1	CIRCLEVILLE 7SW	KS	1.06E	1.06
HOYK1	HOYT	KS	1.06E	1.06
UNGN1	UEHLING	NE	1.06	1.06
K87	HIAWATHA 5SSE	KS	1.05E	1.05
HUBN1	HUBBELL	NE	1.05	1.05
UHLN1	UEHLING	NE	1.04E	1.04

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0STATION ID	DESCRIPTION	STATE	06/02	PERIOD SUM
BLRK1	BLUE RAPIDS	KS	1.03E	1.03
GOTN1	GOTHENBURG	NE	1.03E	1.03
BANK1	BARNES, LTL BLUE R	KS	1.02	1.02
BRPK1	BLUE RAPIDS	KS	1.02	1.02
ESTK1	EASTON, STRANGER CR	KS	1.02E	1.02
ELWK1	ELLSWORTH	KS	1.02E	1.02
ESOK1	ELLSWORTH	KS	1.02	1.02
UEHN1	UEHLING, LOGAN CR	NE	1.02E	1.02
EONK1	EASTON	KS	1.01	1.01
LGIK1	LONG ISLAND 1N	KS	1.01E	1.01
EAR	KEARNEY	NE	0.97E	0.98
KRNN1	KEARNEY 4NE	NE	0.97	0.98
LSHI4	LOESS HILLS RAWS	IA	0.97E	0.98
LNDK1	LYNDON 3ENE	KS	0.97E	0.98
LYDK1	LYNDON 3ENE	KS	0.97E	0.98
PSGI4	PISGAH, SOLDIER R	IA	0.97E	0.98
HARL008	ALMA	NE	0.96E	0.96
TNGK1	TONGANOXIE 4E	KS	0.96	0.96
GURMB	TONGANOXIE 3NE	KS	0.95E	0.95
KPLK1	KANOPOLIS	KS	0.94E	0.94
LNSK1	LINDSBORG,SMOKY HILL	KS	0.94E	0.94
OTWK1	OTTAWA	KS	0.93E	0.94
OTTK1	OTTAWA	KS	0.93	0.94
PMNK1	POMONA 2S	KS	0.93E	0.94
OAKN1	OAKLAND	NE	0.92E	0.93
WDLK1	WOODLAWN 2W	KS	0.92E	0.93
BEAK1	BEATTIE 2NNW	KS	0.91	0.92
BNAM7	BEAN LAKE	MO	0.90E	0.90
BLYK1	BAILEYVILLE	KS	0.89	0.89
EDGK1	EDGERTON 2NE	KS	0.89	0.89
WDRK1	WOODRUFF 3WSW	KS	0.89E	0.89
PXCK1	PAXICO 1SW, MILL CR	KS	0.88E	0.88
FRBN1	FAIRBURY, LTL BLUE R	NE	0.86E	0.87

MCFK1	MCFARLAND	KS	0.86	0.87
TEKN1	TEKAMAH	NE	0.86	0.87
FRAN002	HILDRETH 5SSE	NE	0.84E	0.84
HBGK1	HOLLENBERG, LTL BLUE	KS	0.84E	0.84
LSBK1	LINDSBORG	KS	0.84E	0.84
OVRK1	OVERBROOK 7SE	KS	0.84E	0.84
NEWK1	NORWAY	KS	0.82	0.82
RAGN1	RAGAN	NE	0.82E	0.82
REDN1	RED CLOUD	NE	0.81E	0.81
HORM7	HORTON 3NE	MO	0.80E	0.81
KEAN1	KEARNEY 3S, PLATTE R	NE	0.80E	0.81
HTNM7	HORTON, LTL OSAGE R	MO	0.79E	0.80
LCTK1	LECOMPTON	KS	0.79	0.80
LCPK1	LECOMPTON, KANSAS R	KS	0.79E	0.80
NUCK014	GUIDE ROCK 8ESE	NE	0.78E	0.78
HTTM7	HORTON 2S	MO	0.77	0.77
LYON1	LYONS	NE	0.77	0.77
LEXN1	LEXINGTON	NE	0.76	0.76
ONAK1	ONAGA	KS	0.75E	0.75
OVTN1	OVERTON 3W, PLATTE R	NE	0.75E	0.75

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AXTK1	AXTELL	KS	0.74	0.75
HRMN1	HERMAN	NE	0.73E	0.74
WLBK1	WILLIAMSBURG	KS	0.73E	0.74
HLDN1	HOLDREGE	NE	0.72	0.73
HOON1	HOOPER	NE	0.72E	0.73
BARN1	BARNESTON, BIG BLUE	NE	0.71E	0.71
GOFK1	GOFF 3WSW	KS	0.71E	0.71
WYMN1	WYMORE	NE	0.71E	0.71
REPN1	HARLAN COUNTY DAM	NE	0.70E	0.70
GIBN1	GIBBON	NE	0.69E	0.69
GAGE022	DILLER 3E	NE	0.68E	0.69
MONI4	MONDAMIN	IA	0.68E	0.69
HIAK1	HIAWATHA 9ESE	KS	0.67	0.68
LVNK1	LEAVENWORTH	KS	0.67	0.68
LEVK1	LEAVENWORTH	KS	0.67E	0.68
ELMN1	ELM CREEK 1SSW	NE	0.66E	0.67
HMNN1	HERMAN 4WSW	NE	0.64E	0.64
OSGK1	OSAGE CITY	KS	0.64	0.64
ALVK1	ALTA VISTA	KS	0.63E	0.63
JEFF002	FAIRBURY 9WSW	NE	0.63E	0.63
ODSN1	ODESSA	NE	0.63E	0.63
BASK1	BASEHOR 3NE	KS	0.61E	0.62
BRGK1	BURLINGAME,DRAGOON C	KS	0.61E	0.62
CARK1	CARBONDALE	KS	0.61E	0.62
RIVN1	RIVERDALE, WOOD R	NE	0.61E	0.62
WAKN1	WAKEFIELD	NE	0.61	0.62
ATSK1	ATCHISON 1S	KS	0.60	0.61
WORK1	WORDEN	KS	0.60E	0.61
BNGN1	BRUNING	NE	0.59	0.59
SRBN1	SCRIBNER, PEBBLE CR	NE	0.59E	0.59
ATCK1	ATCHISON, MISSOURI R	KS	0.58E	0.58

BRNN1	BERTRAND	NE	0.58E	0.58
CLTN1	CARLETON 3SW	NE	0.58E	0.58
GBBN1	GIBBON 3ENE, WOOD R	NE	0.58E	0.58
ATLN1	ATLANTA 2WNW	NE	0.57E	0.57
GYSK1	GYPSUM 4S, GYPSUM CR	KS	0.57	0.57
NELN1	NELSON	NE	0.57E	0.57
BCTN1	BANCROFT, LOGAN CR	NE	0.56E	0.56
FTNK1	FULTON, LTL OSAGE R	KS	0.56E	0.56
MLLK1	MILLER 4SSW	KS	0.56	0.56
WEBS011	GUIDE ROCK 9N	NE	0.55E	0.56
SCZM7	SCHELL CITY, OSAGE R	MO	0.55E	0.56
SCRN1	SCRIBNER	NE	0.55E	0.56
TRNI4	TURIN 4SW, M-H DITCH	IA	0.55E	0.56
ARPN1	ARAPAHOE, MUDDY CR	NE	0.54E	0.55
ATHK1	ATCHISON	KS	0.53	0.53
BEFM8	AUGUSTA 21WSW	MT	0.53	0.53
BERK1	BERRYTON	KS	0.53E	0.53
BLIN1	BLAIR 5WNW	NE	0.53E	0.53
BURT002	CRAIG 6S	NE	0.53E	0.53
HRBN1	HARBINE 1WSW	NE	0.53E	0.53
ORUN1	ORUM	NE	0.53E	0.53
HRVK1	HARVEYVILLE	KS	0.52E	0.52

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NVDM7	NEVADA, MARMATON R	MO	0.52E	0.52
SHKN1	SHICKLEY 4S	NE	0.52E	0.52
TURI4	TURIN, LTL SIOUX R	IA	0.52E	0.52
LONK1	LOGAN	KS	0.51	0.51
TOP	TOPEKA	KS	0.51	0.51
BSCM8	BASIN CREEK	MT	0.50	0.50
RDGK1	READING 2N	KS	0.50E	0.50
SKAM8	SKALKAHO SUMMIT	MT	0.50	0.50
HBRN1	HEBRON	NE	0.49	0.50
HBNN1	HEBRON #2	NE	0.49E	0.50
HEBN1	HEBRON #2	NE	0.49E	0.50
STCK1	WEBSTER DAM	KS	0.49E	0.50
ESKK1	ESKRIDGE	KS	0.48	0.48
SABK1	SABETHA	KS	0.48E	0.48
KSSN7	TOPEKA 5ESE	KS	0.48E	0.48
ADAN1	ADAMS	NE	0.47	0.47
BERN1	BERTRAND	NE	0.47E	0.47
CNTI4	CENTERVILLE	IA	0.47	0.47
GENK1	GENESEO 2N	KS	0.47E	0.47
JANN1	JANSEN	NE	0.47E	0.47
ORGM7	OREGON	MO	0.47E	0.47
PTEM7	PLATTE CITY (DNR)	MO	0.47	0.47
WEBS009	BLADEN 4SW	NE	0.46E	0.47
PRRK1	PERRY LAKE	KS	0.46	0.47
SNCK1	SENECA, TURKEY CR	KS	0.46E	0.47
SHLM7	SCHELL CITY	MO	0.45E	0.45
TRYK1	TROY 3N	KS	0.45E	0.45
HSI	HASTINGS	NE	0.44	0.44
P69	LOWELL	ID	0.44	0.44

RCHK1	RICHLAND, WAKARUSA R	KS	0.44E	0.44
RVEK1	ROSSVILLE	KS	0.44E	0.44
RSSK1	ROSSVILLE, CROSS CR	KS	0.44E	0.44
BRCN1	BEATRICE 1N	NE	0.43	0.44
BVCN1	BEAVER CITY	NE	0.43	0.44
CHLK1	CHALK	KS	0.43E	0.44
AGSM8	GIBSON DAM	MT	0.43E	0.44
GDMM8	GIBSON LAKE	MT	0.43	0.44
OCNN1	OCONTO	NE	0.43E	0.44
NFSM8	AUGUSTA 25NW	MT	0.42E	0.42
EDSN1	EDISON	NE	0.42E	0.42
MVNK1	MELVERN 2W	KS	0.42E	0.42
REMI4	REMSEN	IA	0.42E	0.42
RMSI4	REMSEN #2	IA	0.42	0.42
TONK1	TONGANOXIE 5SE	KS	0.42E	0.42
BEAN1	BEATRICE	NE	0.41E	0.41
BIE	BEATRICE #1	NE	0.41E	0.41
BEVN1	BEAVER CITY 4WSW	NE	0.41E	0.41
RULN1	RULO	NE	0.41E	0.41
RUON1	RULO 2W	NE	0.41	0.41
UPLN1	UPLAND	NE	0.41E	0.41
WLTN1	WALTHILL 1E	NE	0.41E	0.41
WHLN1	WALTHILL, S OMAHA CR	NE	0.41E	0.41
BTNW4	BEAR TRAP MEADOW	WY	0.40	0.41

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BURN1	BURCHARD	NE	0.40E	0.41
LVRM8	LAKEVIEW RIDGE	MT	0.40	0.41
LWC	LAWRENCE	KS	0.40E	0.41
LUBM8	LUBRECHT FLUME	MT	0.40	0.41
MLVK1	MELVERN DAM 1E	KS	0.40	0.41
MSPM8	MOSS PEAK	MT	0.40	0.41
ONPM8	ONION PARK	MT	0.40	0.41
SLMN1	SALEM 5SW	NE	0.40E	0.41
JOHN009	STERLING 3WSW	NE	0.40E	0.41
STTM8	STUART MOUNTAIN	MT	0.40	0.41
TNDM8	TENDERFOOT RAWS	MT	0.40E	0.41
WLVW4	WOLVERINE	WY	0.40	0.41
HSTN1	HASTINGS 4N	NE	0.39E	0.39
GID	HASTINGS 4N	NE	0.39E	0.39
ADAM010	JUNIATA 7WSW	NE	0.39E	0.39
AGYM7	AGENCY 4NE, PLATTE R	MO	0.38	0.38
ALXN1	ALEXANDRIA 3S	NE	0.38E	0.38
VCWK1	LACLEDE, VERMILLION	KS	0.38E	0.38
NUCK001	LAWRENCE	NE	0.38E	0.38
NUCK004	LAWRENCE	NE	0.38E	0.38
NEVM7	NEVADA WATER PLANT	MO	0.38E	0.38
SOLI4	SOLDIER	IA	0.38E	0.38
SOFM7	ST JOE LNDFIL (6)	MO	0.38E	0.38
DWEN1	DEWEESE, LTL BLUE R	NE	0.37E	0.38
ZEDK1	HAYS 15NNE	KS	0.37E	0.38
LKVM8	LAKEVIEW	MT	0.37E	0.38
MOLI4	MOULTON, CHARITON R	IA	0.37E	0.38

PLSK1	PLEASANTON	KS	0.37E	0.38
RSDM7	ROSENDALE, 102 RIVER	MO	0.37	0.38
SODM7	ST JOE WHITHD (4)	MO	0.37E	0.38
SAJM7	ST JOSEPH	MO	0.37E	0.38
SJSM7	ST JOSEPH, MISSOURI	MO	0.37E	0.38
AXDN1	ALEXANDRIA,BIG SANDY	NE	0.36	0.37
AUBK1	AUBURN	KS	0.36E	0.37
RCBM8	BOX ELDER	MT	0.36	0.37
CLYN1	CLAY CENTER 6ESE	NE	0.36	0.37
KSJO13	GARDNER 3SE	KS	0.36E	0.37
GTF	GREAT FALLS AIRPORT	MT	0.36	0.37
PEDN1	PENDER, LOGAN CR	NE	0.36E	0.37
ADAM006	ROSELAND 3SW	NE	0.36E	0.37
SOAM7	ST JOE RIPLEY (1)	MO	0.36E	0.37
STJ	ST JOSEPH 4WNW	MO	0.36	0.37
WNDK1	WINDOM 1SE	KS	0.36E	0.37
PNDN1	PENDER	NE	0.35E	0.35
TRDK1	STATELINE RAWS	KS	0.35	0.35
TPOK1	TRADING POST 2SSE	KS	0.35E	0.35
VRGN1	VIRGINIA 4SSE	NE	0.35	0.35
LHX	LA JUNTA 4NNE	CO	0.34	0.34
LWTN1	LEWISTON	NE	0.34E	0.34
OFF	OFFUTT FIELD	NE	0.34	0.34
FOE	TOPEKA FORBES FIELD	KS	0.34	0.34
BOCM7	BOLCKOW, 102 RIVER	MO	0.33	0.34
BRAN1	BRADY 1S	NE	0.33E	0.34

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BDYN1	BRADY, PLATTE R	NE	0.33E	0.34
DNSK1	DENSMORE 2N	KS	0.33E	0.34
EMRN1	EMERSON	NE	0.33E	0.34
GRLM8	MORONY DAM	MT	0.33E	0.34
EDIN1	EDISON 2E, TURKEY CR	NE	0.32E	0.32
SSTM7	SHARPS STATION	MO	0.32	0.32
SSZM7	SHARPS STATION GDDS	MO	0.32E	0.32
CID	CEDAR RAPIDS AIRPORT	IA	0.31	0.31
ADAM002	JUNIATA 6SSW	NE	0.31E	0.31
MMLN1	MILLER	NE	0.31	0.31
MLLN1	MILLER	NE	0.31E	0.31
MSAM8	MISSOULA 2NE	MT	0.31E	0.31
CSAI4	CASTANA EXP FARM	IA	0.30	0.31
CMBM8	COMBINATION	MT	0.30	0.31
CPCM8	COPPER CAMP	MT	0.30	0.31
DBOM8	DEARBORN RAWS	MT	0.30	0.31
FLLN1	FALLS CITY 2NE	NE	0.30E	0.31
GTFM8	GREAT FALLS 16TH ST	MT	0.30E	0.31
GRCM7	GREEN CITY 7N	MO	0.30	0.31
HMLM7	HAMILTON 2W	MO	0.30	0.31
HANM8	HAND CREEK	MT	0.30	0.31
NFEM8	NORTH FORK ELK CREEK	MT	0.30	0.31
TCMN1	TECUMSEH	NE	0.30E	0.31
WBNI4	WOODBINE	IA	0.30E	0.31
ALNN1	ALLEN	NE	0.29E	0.29

FNB	FALLS CITY 2NE	NE	0.29	0.29
HMAN1	HERMAN	NE	0.29E	0.29
DEOI4	MISSOURI VALLEY 10W	IA	0.29	0.29
PLNK1	PLAINVILLE 4WNW	KS	0.29	0.29
PLTM7	PLATTSBURG	MO	0.29E	0.29
SELM8	SEELEY LAKE	MT	0.29E	0.29
WAVK1	WAVERLY	KS	0.29E	0.29
BTLM7	BUTLER 4SW, MIAMI CR	MO	0.28E	0.28
CCPM7	CONCEPTION	MO	0.28	0.28
CRBN1	CRAB ORCHARD	NE	0.28E	0.28
HLN	HELENA AIRPORT	MT	0.28	0.28
HLYI4	HOLLY SPRINGS 1NW	IA	0.28	0.28
NCKN1	NICKERSON 3NE	NE	0.28E	0.28
LPPM7	PLATTSBURG 2E	MO	0.28E	0.28
JOHN005	STERLING 3ESE	NE	0.28E	0.28
WTCK1	WHITE CITY	KS	0.28	0.28
WRSM8	WISE RIVER RAWS	MT	0.28E	0.28
BELN1	BELLVUE	NE	0.27E	0.28
BLAN1	BLAIR 2E, MISSOURI R	NE	0.27E	0.28
CLIK1	CLINTON RESERVOIR	KS	0.27E	0.28
DOWM7	DOWNING	MO	0.27	0.28
FCKN1	FT CROOK, PAPILLION	NE	0.27E	0.28
LRCK1	LAWRENCE	KS	0.27E	0.28
NCRK1	NORCATUR, SAPPA CR	KS	0.27	0.28
RRDM8	RED ROCK RAWS	MT	0.27E	0.28
TBLN1	TABLE ROCK 4N	NE	0.27	0.28
UPDN1	UPLAND 4NE	NE	0.27E	0.28
VDIM7	VANDIKE FARMS 4NNE	MO	0.27	0.28

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WHHM8	WHITEHALL RAWS	MT	0.27E	0.28
AMTM7	AMITY 4NE	MO	0.26	0.26
FIRN1	FIRTH	NE	0.26E	0.26
ADAM008	GLENVIL 2WSW	NE	0.26E	0.26
GLNI4	GLENWOOD	IA	0.26	0.26
TFX	GREAT FALLS WFO	MT	0.26	0.26
ZEAK1	HAYS 11NE	KS	0.26E	0.26
LNBM8	LINDBERGH LAKE	MT	0.26E	0.26
MCPK1	MCPHERSON	KS	0.26E	0.26
IXD	OLATHE	KS	0.26	0.26
SMHM7	SMITHVILLE	MO	0.26E	0.26
ULMM8	ULM 6E, MISSOURI R	MT	0.26E	0.26
BTTM8	BUTTE 8S	MT	0.25E	0.25
CMRM7	CAMERON 4NW	MO	0.25E	0.25
CSMM8	CASCADE 5S	MT	0.25E	0.25
DELK1	DELIA 3E, SOLDIER CR	KS	0.25E	0.25
DUBN1	DUBOIS	NE	0.25E	0.25
GLEI4	GLENWOOD 3SW	IA	0.25E	0.25
CUST004	GOTHENBURG 15NNW	NE	0.25E	0.25
KGCM7	KING CITY	MO	0.25E	0.25
NKRN1	NICKERSON, MAPLE CR	NE	0.25E	0.25
RAVN1	RAVENNA	NE	0.25E	0.25
SLKM7	SMITHVILLE DAM	MO	0.25E	0.25

CAMM7	CAMERON	MO	0.24	0.24
HRWM8	HELENA 3N RAWS	MT	0.24E	0.24
HVMM8	HELENA 4NE	MT	0.24E	0.24
HWPM8	HELENA WATER PLANT	MT	0.24E	0.24
HBLN1	HUMBOLDT	NE	0.24E	0.24
KANK1	KANOPOLIS DAM	KS	0.24E	0.24
LAYK1	LA CYGNE 4ESE	KS	0.24E	0.24
LGLK1	LANGLEY, SMOKY HILL	KS	0.24	0.24
WEBS003	LAWRENCE 4WSW	NE	0.24E	0.24
MNDM7	MENDON, HICKORY BR	MO	0.24E	0.24
PAWN1	PAWNEE CITY	NE	0.24	0.24
RUEK1	RUSSELL 7E	KS	0.24E	0.24
SKLM8	SKYLARK TRAIL	MT	0.24E	0.24
VIRN1	VIRGINIA	NE	0.24E	0.24
DCTN1	DECATUR, MISSOURI R	NE	0.23E	0.23
GRMM7	GRAHAM	MO	0.23E	0.23
GRZM7	GRAHAM, NODAWAY R	MO	0.23E	0.23
HLTM7	HOLT 3E	MO	0.23E	0.23
LANK1	LANE	KS	0.23	0.23
LNEK1	LANE, POTTAWATOMIE C	KS	0.23E	0.23
MSO	MISSOULA SITE 1	MT	0.23	0.23
NOOK1	NORTON DAM	KS	0.23E	0.23
RVNN1	RAVENNA, SO LOUP R	NE	0.23E	0.23
TEPM8	TEPEE POINT RAWS	MT	0.23E	0.23
BLRN1	BLAIR	NE	0.22E	0.22
BNRK1	BONNER SPRINGS	KS	0.22	0.22
BTM	BUTTE FAA AIRPORT	MT	0.22	0.22
DAWN1	DAWSON 4ESE	NE	0.22E	0.22
FSTM8	FISHTAIL	MT	0.22E	0.22
KENI4	KENNEBEC, LTL SIOUX	IA	0.22	0.22

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LARK1	LAWRENCE	KS	0.22E	0.22
LINM7	LINNEUS	MO	0.22E	0.22
LNNM7	LINNEUS 3SE	MO	0.22	0.22
MAPI4	MAPLETON, MAPLE R	IA	0.22E	0.22
PALK1	PAOLA 10W	KS	0.22E	0.22
RCDM7	RICHARDS	MO	0.22E	0.22
SAVM7	SAVANNAH 1S	MO	0.22E	0.22
SIPK1	SCIPIO, POTTAWATOMIE	KS	0.22	0.22
SPD	SPRINGFIELD	CO	0.22	0.22
SLBW4	SUNLIGHT BASIN	WY	0.22E	0.22
ULLM8	ULM 8SE	MT	0.22E	0.22
UNVM7	UNIONVILLE	MO	0.22E	0.22
WARM8	WARRICK 2NW	MT	0.22E	0.22
CASM8	CASCADE	MT	0.21E	0.21
CHLI4	CLIMBING HILL	IA	0.21E	0.21
3DU	DRUMMOND 2SW	MT	0.21E	0.21
EGTM7	EDGERTON	MO	0.21E	0.21
GLLM7	GALLATIN 1W	MO	0.21	0.21
HLTM8	HOLTER DAM 3ESE	MT	0.21E	0.21
MCI	KANSAS CITY INTL AP	MO	0.21	0.21
KRNM7	KEARNEY 3E	MO	0.21	0.21

LCGK1	LA CYGNE 1W	KS	0.21	0.21
MPTI4	MAPLETON #2	IA	0.21E	0.21
POLM7	POLO	MO	0.21E	0.21
RYDM8	RUDYARD 19S	MT	0.21	0.21
SQPM8	ALBERTON	MT	0.20	0.20
BLTM8	BEARTOOTH LAKE	MT	0.20	0.20
BSYM8	BIG SANDY 4SE	MT	0.20E	0.20
BLKM8	BLACK PINE	MT	0.20	0.20
CLVM8	CALVERT CREEK	MT	0.20	0.20
DALM8	DALY CREEK	MT	0.20	0.20
DIVM8	DIVIDE	MT	0.20	0.20
DVDM8	DIVIDE, BIG HOLE R	MT	0.20E	0.20
EMCM8	EMERY CR SNT	MT	0.20	0.20
HMKW4	HAMS FORK	WY	0.20	0.20
KRYM7	KEARNEY 2E	MO	0.20	0.20
MDDW4	MIDDLE POWDER	WY	0.20	0.20
MOKI1	MOOSE CREEK	ID	0.20	0.20
MDCK1	MOUND CITY	KS	0.20E	0.20
NZCM8	NEZ PERCE CAMP	MT	0.20	0.20
NFJM8	NORTH FORK JOCKO	MT	0.20	0.20
NRTK1	NORTON 9SSE	KS	0.20E	0.20
ROCM8	ROCKY BOY	MT	0.20	0.20
SJPM7	ST JOSEPH 4SE	MO	0.20E	0.20
STBM7	STANBERRY	MO	0.20E	0.20
STCM8	STRINGER CREEK	MT	0.20	0.20
WGLM8	WEST GLACIER 1N	MT	0.20	0.20
WLSN1	WILSONVILLE	NE	0.20	0.20
WRVM8	WISE RIVER 3WNW	MT	0.20E	0.20
ABSM8	ABSAROKEE	MT	0.19E	0.19
BDDN1	BARTLEY 4SSW	NE	0.19E	0.19
BLUN1	BLUE HILL 4SW	NE	0.19	0.19
CMBN1	CAMBRIDGE	NE	0.19E	0.19

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0STATION ID	DESCRIPTION	STATE	06/02	PERIOD SUM
CSEM8	CASCADE 20SSE	MT	0.19E	0.19
DMRK1	DAMAR, SF SOLOMON R	KS	0.19	0.19
GAZM7	GALLATIN, GRAND R	MO	0.19E	0.19
GIBM8	GIBBONS PASS	MT	0.19E	0.19
NESN1	HASKELL AGRICULTURAL	NE	0.19E	0.19
LBEM7	LIBERTY 3NW	MO	0.19E	0.19
CEFM8	LIMA 36ENE	MT	0.19E	0.19
MARN1	MARTINSBURG	NE	0.19E	0.19
KSJO12	OLATHE 3W	KS	0.19E	0.19
PACK1	PALCO	KS	0.19E	0.19
SBTN1	SHUBERT 2SW	NE	0.19E	0.19
SKDM7	SKIDMORE	MO	0.19E	0.19
JVWM8	WHITEHALL 7SW	MT	0.19E	0.19
ANTI4	ANTHON 3E	IA	0.18E	0.19
CAMN1	CAMBRIDGE, REPUB R	NE	0.18E	0.19
CCRN1	CLAY CENTER	NE	0.18	0.19
CRRI4	CORRECTIONVILLE 1SW	IA	0.18E	0.19
EWDK1	EDWARDSVILLE 3NNW	KS	0.18E	0.19
GPKM8	GATE PARK RAWS	MT	0.18E	0.19

GNVN1	GENEVA	NE	0.18E	0.19
HLC	HILL CITY	KS	0.18	0.19
HLCK1	HILL CITY #2	KS	0.18E	0.19
HLLK1	HILL CITY 1E	KS	0.18E	0.19
IOW	IOWA CITY AIRPORT	IA	0.18	0.19
NTCM7	KANSAS CITY 1SE	MO	0.18E	0.19
WTCM7	KANSAS CITY NWSTC	MO	0.18E	0.19
DWCM7	NEVADA, DRY WOOD CR	MO	0.18E	0.19
OVNM8	OVANDO DCP	MT	0.18E	0.19
PCFI4	PACIFIC JUNCTION	IA	0.18E	0.19
SWLM8	SWAN LAKE	MT	0.18E	0.19
BUNK1	BUNKER HILL 7SW	KS	0.17E	0.17
CNVK1	CENTERVILLE 4SW	KS	0.17	0.17
POCW4	CLARK 20WSW	WY	0.17E	0.17
COSM8	COLUMBUS	MT	0.17E	0.17
DRBM8	DARBY	MT	0.17E	0.17
EDSM7	ELDORADO SPRINGS	MO	0.17	0.17
EUSN1	EUSTIS 2NW	NE	0.17	0.17
GBBI1	GIBBONSVILLE	ID	0.17E	0.17
GLFM8	GULF RAWS	MT	0.17E	0.17
LVEW4	LOVELL, BIGHORN R	WY	0.17	0.17
MLNM7	MILAN	MO	0.17E	0.17
MOUM7	MOUNDVILLE	MO	0.17E	0.17
NHTM8	NEIHART 8NNW	MT	0.17E	0.17
TAD	TRINIDAD	CO	0.17E	0.17
VAUM8	VAUGHN 3SE, SUN R	MT	0.17E	0.17
SQFM8	WISDOM 12NNE	MT	0.17E	0.17
ALAM7	ALBANY	MO	0.16	0.16
BLMK1	BLUE MOUND	KS	0.16E	0.16
CRDW4	CRANDALL CREEK	WY	0.16E	0.16
JEFF006	FAIRBURY 8NNW	NE	0.16E	0.16
FTSK1	FT SCOTT	KS	0.16E	0.16
HRSK1	HARRIS 3SSW	KS	0.16E	0.16
HICK1	HILL CITY	KS	0.16E	0.16

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LNCM8	LINCOLN 2NE RAWS	MT	0.16E	0.16
MPHK1	MAPLE HILL	KS	0.16E	0.16
MTNM8	MOULTON RESERVOIR	MT	0.16E	0.16
MODK1	MOUND CITY 1SSW	KS	0.16E	0.16
SQUM7	MOUND CITY, SQUAW CR	MO	0.16E	0.16
MOVI4	MOVILLE	IA	0.16E	0.16
NTDK1	NORTON DAM	KS	0.16E	0.16
RAMM7	RAYMORE	MO	0.16	0.16
AMCK1	AMERICUS 2S	KS	0.15E	0.16
COKN1	COOK	NE	0.15E	0.16
CSBM7	COSBY 2W	MO	0.15E	0.16
DUMK1	DURHAM	KS	0.15E	0.16
KNXM7	KNOXVILLE	MO	0.15E	0.16
LAWK1	LAWRENCE, WAKARUSA R	KS	0.15	0.16
LXT	LEES SUMMIT AIRPORT	MO	0.15	0.16
MALI4	MALVERN	IA	0.15E	0.16
NHRM8	NEIHART 7NW	MT	0.15E	0.16

PSPN1	PONCA STATE PARK	NE	0.15E	0.16
SAGM7	RAYMORE	MO	0.15E	0.16
RONM7	RAYMORE	MO	0.15E	0.16
WRPM8	ROGERS PASS 9NNE	MT	0.15E	0.16
ANDW4	SOUTH PASS CITY 8WSW	WY	0.15E	0.16
WISM8	WISDOM	MT	0.15E	0.16
ALBM7	ALBANY	MO	0.14E	0.14
CKPI4	CHEROKEE	IA	0.14	0.14
CHKI4	CHEROKEE, LTL SIOUX	IA	0.14E	0.14
WBRM8	CORVALLIS 2NE	MT	0.14E	0.14
DURK1	DURHAM	KS	0.14E	0.14
LEBK1	LEBO	KS	0.14	0.14
LOGI4	LOGAN	IA	0.14	0.14
LGNI4	LOGAN #2, BOYER R	IA	0.14E	0.14
MDDM7	MIDDLETOWN	MO	0.14E	0.14
MGZM8	MILLEGAN 14SE	MT	0.14E	0.14
PHYM8	NEIHART 6S RAWS	MT	0.14E	0.14
NYEM8	NYE #2	MT	0.14E	0.14
RAFM8	RAYNESFORD 2NNW	MT	0.14E	0.14
RCCM7	RICHARDS, MARMATON R	MO	0.14E	0.14
SULM8	SULA 3ENE	MT	0.14E	0.14
TSFK1	TOPEKA SW 29TH ST	KS	0.14E	0.14
MDYM8	VAUGHN	MT	0.14E	0.14
WODN1	WOOD RIVER 1NNW	NE	0.14E	0.14
BDAN1	BARADA 3SW	NE	0.13E	0.13
YYC	CALGARY	AB	0.13	0.13
CYNM8	CANYON FERRY DAM	MT	0.13E	0.13
DLMM8	DELMOE RAWS	MT	0.13E	0.13
EPRK1	EMPORIA 3NW	KS	0.13	0.13
EXSM7	EXCELSIOR SPRINGS 4S	MO	0.13E	0.13
FSLM8	FISHTAIL 7W RAWS	MT	0.13E	0.13
CFRM8	HELENA 15E	MT	0.13E	0.13
TMGM7	KANSAS CITY 4NW	MO	0.13E	0.13
KLYM8	KELLY RAWS	MT	0.13E	0.13
LINM8	LINCOLN RANGER STA	MT	0.13E	0.13
LCRM7	LUCERNE, MEDICINE CR	MO	0.13E	0.13

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MASN1	MASON CITY	NE	0.13E	0.13
MINN1	MINDEN	NE	0.13	0.13
MVLI4	MISSOURI VALLEY 1NNE	IA	0.13E	0.13
NOTK1	NORTON 3SW	KS	0.13E	0.13
OTOE002	PALMYRA 7SSE	NE	0.13E	0.13
PTTM7	PATTONSBURG 2S	MO	0.13	0.13
PATM7	PATTONSBURG, GRAND R	MO	0.13E	0.13
PTMN1	PLATTSMOUTH 1E	NE	0.13E	0.13
PWRM8	POWER 6SE	MT	0.13E	0.13
CWYN1	CALLAWAY 8WSW	NE	0.12	0.13
CDJ	CHILLICOTHE	MO	0.12	0.13
CORM7	CORNING	MO	0.12E	0.13
GSNM8	GLEASON RAWS	MT	0.12E	0.13
LEEM7	JAMES A REED WLR	MO	0.12	0.13
KRMM8	KREMLIN	MT	0.12E	0.13

LEMI4	LE MARS	IA	0.12E	0.13
S69	LINCOLN RANGER STA	MT	0.12E	0.13
SHEM001	LITCHFIELD 4N	NE	0.12E	0.13
LOMM8	LOMA 1WNW	MT	0.12E	0.13
LUPN1	LOUP CITY, MID LOUP	NE	0.12	0.13
MIW	MARSHALLTOWN AIRPORT	IA	0.12E	0.13
OXFN1	OXFORD 6NNW	NE	0.12	0.13
PRMI4	PROMISE CITY 6NW	IA	0.12E	0.13
RUNM8	RUDYARD 27N	MT	0.12E	0.13
TOBN1	TOBIAS	NE	0.12E	0.13
UTYM7	UNITY VILLAGE	MO	0.12E	0.13
UVAM7	UNITY VILLAGE 3ESE	MO	0.12	0.13
WHTI4	WASHTA	IA	0.12E	0.13
SMHM8	WHITE SULPHUR 25NNW	MT	0.12E	0.13
BDLM8	WHITEHALL 4SW RAWS	MT	0.12E	0.13
PISM8	AUGUSTA 20NNW	MT	0.11E	0.12
BETM7	BELTON	MO	0.11E	0.12
COXMB	COX, ROBERT	MO	0.11E	0.12
DUNK1	DUNLAP 2N	KS	0.11E	0.12
SUMM8	EAST GLACIER 11SW	MT	0.11E	0.12
FBKM8	FORT BELKNAP CANAL	MT	0.11E	0.12
CUST020	GOTHENBURG 24N	NE	0.11E	0.12
HARM8	HARLEM	MT	0.11	0.12
HRRM7	HARRISONVILLE	MO	0.11E	0.12
HERK1	HERINGTON	KS	0.11	0.12
NEMA009	JOHNSON 2E	NE	0.11E	0.12
LKJM7	LAKE JACOMO	MO	0.11E	0.12
LAWI4	LAWTON	IA	0.11E	0.12
OPAK1	O P #1500 (OLATHE)	KS	0.11E	0.12
HITN1	OMAHA (HITCHCOCK PK)	NE	0.11E	0.12
TUNMB	PECULIAR 2SW	MO	0.11E	0.12
PECM7	PECULIAR 3SW	MO	0.11E	0.12
SVRM8	SILVER STAR	MT	0.11E	0.12
TSEK1	TOPEKA SW 37TH ST	KS	0.11E	0.12
TNBM8	TWIN BRIDGES	MT	0.11E	0.12
VRGM8	VIRGELLE, MISSOURI R	MT	0.11E	0.12
WORM7	WORTH 4W	MO	0.11E	0.12
ABRM8	ALBRO LAKE	MT	0.10	0.11

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ALTI4	ALTON, FLOYD R	IA	0.10E	0.11
ATLM7	ATLANTA	MO	0.10E	0.11
BRLM8	BARKER LAKES	MT	0.10	0.11
BGEW4	BIG GOOSE	WY	0.10	0.11
BOXM8	BOX CANYON	MT	0.10	0.11
BRJW4	BURGESS JUNCTION	WY	0.10	0.11
BRLK1	BURLINGTON	KS	0.10E	0.11
BRCW4	BURROUGHS CREEK	WY	0.10	0.11
CANW4	CANYON 2SSW	WY	0.10	0.11
CAYW4	CANYON RANGER STA	WY	0.10E	0.11
CHLM7	CHILLICOTHE	MO	0.10	0.11
CMDM8	CLOVER MEADOW	MT	0.10	0.11
COLC2	COLUMBINE LODGE	CO	0.10	0.11

COPM8	COPPER BOTTOM	MT	0.10	0.11
DHLM8	DARKHORSE LAKE	MT	0.10	0.11
DDMM8	DEADMAN CREEK	MT	0.10	0.11
DVDW4	DIVIDE PEAK	WY	0.10	0.11
DRXM7	DREXEL	MO	0.10	0.11
DLPK1	DUNLAP 2N	KS	0.10E	0.11
ERLI4	EARLING	IA	0.10E	0.11
ERDW4	EAST RIM DIVIDE	WY	0.10	0.11
ASNM8	FORT ASSINNIBOINE	MT	0.10E	0.11
HAVM8	FRESNO DAM	MT	0.10E	0.11
GARK1	GARNETT 1E	KS	0.10	0.11
MOWH1	GRANT CITY 4WSW	MO	0.10E	0.11
GRTM7	GRANT CITY 5WSW	MO	0.10	0.11
HNSW4	HANSEN SAWMILL	WY	0.10	0.11
HWSM8	HARLEM 2W	MT	0.10E	0.11
HRVM8	HAVRE #2	MT	0.10E	0.11
HVR	HAVRE AIRPORT	MT	0.10	0.11
HOOM8	HOODOO BASIN	MT	0.10	0.11
ILIM8	ILIAD	MT	0.10E	0.11
IDPC2	INDEPENDENCE PASS	CO	0.10	0.11
INCW4	INDIAN CREEK	WY	0.10	0.11
KLLW4	KELLEY	WY	0.10	0.11
LARM7	LAMAR 12NE	MO	0.10E	0.11
LSSM7	LEES SUMMIT 2SE	MO	0.10	0.11
LVAM7	LIVONIA	MO	0.10E	0.11
LVZM7	LIVONIA, CHARITON R	MO	0.10	0.11
LOPW4	LOOMIS PARK	WY	0.10	0.11
LOVW4	LOVELL	WY	0.10E	0.11
MBRM8	MAIN BOULDER RAWS	MT	0.10E	0.11
MRQW4	MARQUETTE CREEK	WY	0.10	0.11
MYLM7	MARYVILLE 1E	MO	0.10E	0.11
MYVM7	MARYVILLE, 102 RIVER	MO	0.10	0.11
MDLI1	MEADOW LAKE	ID	0.10	0.11
MULM8	MULE CREEK	MT	0.10	0.11
NEVM8	NEVADA CREEK	MT	0.10E	0.11
NVRM8	NEVADA RIDGE	MT	0.10	0.11
NFLW4	NEW FORK LAKE	WY	0.10	0.11
ORCI4	ORANGE CITY	IA	0.10	0.11
PTNM8	PETERSON MEADOWS	MT	0.10	0.11
PHBW4	PHILLIPS BENCH	WY	0.10	0.11

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PICM8	PIKE CR SNT	MT	0.10	0.11
PLCM8	PLACER BASIN	MT	0.10	0.11
PHLM7	PLEASANT HILL	MO	0.10E	0.11
PLSM7	PLEASANT HILL 1E	MO	0.10E	0.11
PLHM7	PLEASANT HILL MBRFC	MO	0.10	0.11
RNHW4	RENO HILL	WY	0.10	0.11
SDMM8	SADDLE MOUNTAIN	MT	0.10	0.11
SNLW4	SAND LAKE	WY	0.10	0.11
SRSW4	SANDSTONE	WY	0.10	0.11
SPSW4	SOUTH PASS	WY	0.10	0.11
SCSC2	STILLWATER CREEK	CO	0.10	0.11

TPEM8	TEPEE CREEK	MT	0.10	0.11
TIEW4	TIE CREEK	WY	0.10	0.11
TIBM8	TIZER BASIN	MT	0.10	0.11
TOPW4	TWO OCEAN PLATEAU	WY	0.10	0.11
CHUM8	WALDRON	MT	0.10	0.11
WALM8	WALDRON	MT	0.10E	0.11
WSTN1	WESTERN 2W	NE	0.10	0.11
WLLC2	WILLOW CREEK PASS	CO	0.10	0.11
YOUW4	YOUNTS PEAK	WY	0.10	0.11
ABAM7	ALBANY, E FK GRAND R	MO	0.09	0.10
ALDN1	ALDA 1SW, WOOD R	NE	0.09E	0.10
BYDM8	BOYD, RED LODGE CR	MT	0.09E	0.10
BSHK1	BUSHONG 5W	KS	0.09E	0.10
CHEM8	CHESTER	MT	0.09E	0.10
TOFW4	DUBOIS 41NNW	WY	0.09E	0.10
FTBM8	FORT BENTON	MT	0.09E	0.10
GCK	GARDEN CITY	KS	0.09	0.10
GILM8	GILDFORD	MT	0.09E	0.10
WAWC2	GRANBY 4NNW	CO	0.09E	0.10
GNTM7	GRANT CITY	MO	0.09E	0.10
HRLI4	HARLAN 1N	IA	0.09	0.10
HSII4	HASTINGS 4NE	IA	0.09E	0.10
JKSN1	JACKSON	NE	0.09E	0.10
LGSW4	LITTLE GOOSE SNOTEL	WY	0.09E	0.10
LNZM7	LONGVIEW DAM	MO	0.09E	0.10
LNGM7	LONGVIEW DAM BELOW	MO	0.09E	0.10
NAPM7	NAPOLEON, MISSOURI R	MO	0.09	0.10
NEOK1	NEOSHA RAPIDS	KS	0.09E	0.10
NRPK1	NEOSHO RAPIDS	KS	0.09E	0.10
OTOI4	OTO	IA	0.09E	0.10
PLTN1	PLATTSMOUTH 1E	NE	0.09E	0.10
PLSM8	POLARIS 4N	MT	0.09E	0.10
RPTM8	REEDPOINT	MT	0.09E	0.10
RIMM8	RIMINI 4NE	MT	0.09E	0.10
SDRW4	SAND LAKE RESERVOIR	WY	0.09E	0.10
SHPK1	SHARPE 3E	KS	0.09E	0.10
SLVM8	SILVER LAKE	MT	0.09E	0.10
SPBM8	SPOTTED BEAR RAWS	MT	0.09E	0.10
TAKM7	TARKIO #2	MO	0.09	0.10
TARM7	TARKIO 1SW	MO	0.09E	0.10
YNTW4	YOUNTS PEAK	WY	0.09E	0.10
AMW	AMES AIRPORT	IA	0.08	0.09

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APLMB	APLEY, TED	MO	0.08E	0.09
ACDK1	ARCADIA	KS	0.08E	0.09
ARCN1	ARCADIA	NE	0.08E	0.09
BTLI4	BATTLE CREEK 3NE	IA	0.08	0.09
BEOM7	BELTON 2W	MO	0.08E	0.09
BEBN1	BENNINGTON 2NW	NE	0.08E	0.09
BNSI4	BRONSON	IA	0.08E	0.09
BUCM7	BUCKNER	MO	0.08E	0.09
RED_013	DANBURY 1W	NE	0.08E	0.09

DBYM8	DERBY MOUNTAIN RAWS	MT	0.08E	0.09
DSOK1	DESOTO, KANSAS R	KS	0.08E	0.09
ELSM7	ELDORADO SPRINGS 12E	MO	0.08E	0.09
EMMI4	EMMETSBURG	IA	0.08	0.09
FRXM7	FAIRFAX	MO	0.08E	0.09
FFXM7	FAIRFAX 1W, TARKIO R	MO	0.08	0.09
FCRM8	FRENCH CREEK RAWS	MT	0.08E	0.09
GPI	GLACIER PARK AIRPORT	MT	0.08	0.09
GLKC2	GRAND LAKE 1NW	CO	0.08E	0.09
GDLC2	GRAND LAKE 6SSW	CO	0.08E	0.09
HWDM8	HIGHWOOD 7NE	MT	0.08E	0.09
HSTI4	HOLSTEIN	IA	0.08E	0.09
HMRN1	HOMER, OMAHA CR	NE	0.08E	0.09
IDGI4	IDA GROVE 5NW	IA	0.08E	0.09
RCKM7	INDEPENDENCE,ROCK CR	MO	0.08	0.09
JAC	JACKSON HOLE AIRPORT	WY	0.08E	0.09
JMEI4	JAMES 1NE, FLOYD R	IA	0.08E	0.09
TIZM8	JEFFERSON CITY	MT	0.08E	0.09
KSYM7	KANSAS CITY 40 HWY	MO	0.08E	0.09
KCRM7	KANSAS CITY EAST	MO	0.08E	0.09
KWAM7	KANSAS CTY WILSON AV	MO	0.08E	0.09
LSWM7	LEES SUMMIT 2WSW	MO	0.08	0.09
MOON1	MOOREFIELD	NE	0.08E	0.09
NEOI4	NEOLA	IA	0.08E	0.09
PRKM7	PARKVILLE 2N	MO	0.08E	0.09
PHGM8	PHILIPSBURG RAWS	MT	0.08E	0.09
PNYM8	PONY	MT	0.08E	0.09
RPJM8	RAPELJE 4S	MT	0.08E	0.09
RATM7	RAYTOWN #2	MO	0.08	0.09
KSJO16	SHAWNEE 4E	KS	0.08E	0.09
MCSK1	SHAWNEE, MILL CR	KS	0.08	0.09
SHSM8	SHONKIN 7S	MT	0.08E	0.09
SIXI4	SIOUX CENTER 2SE	IA	0.08E	0.09
SPKM7	SPICKARD 7W	MO	0.08	0.09
SPFN1	SPRINGFIELD	NE	0.08E	0.09
KSDM7	STADIUM DR, BLUE R	MO	0.08	0.09
THRW4	THOROFARE	WY	0.08E	0.09
UNDI4	UNDERWOOD	IA	0.08	0.09
AUBN1	AUBURN 5ESE	NE	0.07	0.08
ABRN1	AUBURN, LTL NEMAHA R	NE	0.07E	0.08
BLBN1	BLAIR 4SW	NE	0.07E	0.08
BLSM7	BLUE SPRINGS	MO	0.07E	0.08
BLUM7	BLUE SPRINGS #2	MO	0.07E	0.08
BSZM7	BLUE SPRINGS DAM	MO	0.07E	0.08

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EBMM8	BOULDER MINE SNOTEL	MT	0.07E	0.08
BRON1	BROWNVILLE	NE	0.07E	0.08
DSPK1	BURDICK	KS	0.07E	0.08
CAIN1	CAIRO 5S	NE	0.07E	0.08
CRON1	CAIRO 5S	NE	0.07E	0.08
CMZM7	CAPLINGER MILLS GDDS	MO	0.07E	0.08
CLAN1	CLATONIA	NE	0.07E	0.08

CLNK1	CLAYTON, PRAIRIE DOG	KS	0.07E	0.08
BCCQ8	CONSUL 1SSW	SK	0.07E	0.08
DESK1	DE SOTO	KS	0.07	0.08
CDOK1	DESOTO, CEDAR CR	KS	0.07	0.08
KCDK1	DESOTO, KILL CR	KS	0.07	0.08
DTNM8	DUTTON 9NE	MT	0.07E	0.08
EFLM7	EAST FORK LTL BLUE R	MO	0.07	0.08
FAIMB	FAIMON, ADRIAN	MO	0.07E	0.08
FTLM8	FT LOGAN GDDS	MT	0.07E	0.08
GLVI4	GALVA	IA	0.07E	0.08
DLSM7	GRAIN VALLEY	MO	0.07E	0.08
HRLM8	HARLEM 4SSE, MILK R	MT	0.07E	0.08
HRMM8	HARLEM 8NW DIVERSION	MT	0.07E	0.08
LGEM8	HAVRE 31N, LODGE CR	MT	0.07E	0.08
IDCM7	INDEPENDENCE	MO	0.07E	0.08
IPDM7	INDEPENDENCE #2	MO	0.07	0.08
JMEM7	JAMESON (DNR)	MO	0.07	0.08
JOPM8	JOPLIN	MT	0.07E	0.08
KBPM7	KANSAS CTY BLUE PKWY	MO	0.07E	0.08
KNDW4	KENDALL	WY	0.07E	0.08
LRLM7	LEES SUMMIT ROAD	MO	0.07	0.08
LENK1	LENORA #2	KS	0.07E	0.08
MLRM8	MELROSE 7S	MT	0.07E	0.08
MOOW4	MOOSE	WY	0.07E	0.08
MRLK1	MORLAND 2N	KS	0.07E	0.08
NRCK1	NORCATUR 3WSW	KS	0.07E	0.08
OJC	OLATHE	KS	0.07	0.08
OAHN1	OMAHA 9NW	NE	0.07	0.08
OSAK1	OSAWATOMIE	KS	0.07	0.08
OSMK1	OSAWATOMIE 1NW	KS	0.07E	0.08
PHIM8	PHILIPSBURG 2S	MT	0.07E	0.08
PLYK1	PLYMOUTH 1SW	KS	0.07E	0.08
RYMN1	RAYMOND 2NE	NE	0.07	0.08
RAYM7	RAYTOWN	MO	0.07E	0.08
RCMM7	RICHMOND 3S	MO	0.07	0.08
SLNI1	SALMON	ID	0.07E	0.08
SHEI4	SHELBY	IA	0.07E	0.08
SBCM7	SPRING BRANCH CREEK	MO	0.07	0.08
SNRM8	SUN RIVER 4S	MT	0.07E	0.08
TWF	TWIN FALLS AIRPORT	ID	0.07E	0.08
WLBN1	WILBER, TURKEY CR	NE	0.07	0.08
ATAW4	ALTA	WY	0.06E	0.06
ASHN1	ASHTON	NE	0.06E	0.06
BOCM8	AUGUSTA 7NE	MT	0.06E	0.06
CUST022	BERWYN 4NNE	NE	0.06E	0.06
BOI	BOISE WFO	ID	0.06E	0.06

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BXCW4	BOXELDER, BOXELDER C	WY	0.06E	0.06
BRKN1	BROKEN BOW #2	NE	0.06E	0.06
BKNN1	BROKEN BOW 2W	NE	0.06E	0.06
BBW	BROKEN BOW 2W	NE	0.06	0.06
BRWM7	BROWNING, LOCUST CR	MO	0.06E	0.06

JRLK1	BURLINGTON 3N	KS	0.06E	0.06
BRLM7	BURLINGTON JCT 1W	MO	0.06E	0.06
BRJM7	BURLINGTON JUNCTION	MO	0.06E	0.06
CAPM7	CAPLINGER MILLS 4NW	MO	0.06E	0.06
CARM8	CARDWELL	MT	0.06E	0.06
CMRW4	CASPER MOUNTAIN	WY	0.06E	0.06
CNKM8	CHINOOK	MT	0.06	0.06
CHKM8	CHINOOK 35SE	MT	0.06E	0.06
PRVM8	CHINOOK 3SE	MT	0.06E	0.06
CTSN1	CURTIS 3NNE	NE	0.06E	0.06
ZEKK1	ELLIS 7NE	KS	0.06E	0.06
GLEM8	GLEN 2E	MT	0.06E	0.06
GIDN1	GRAND ISLAND, WOOD R	NE	0.06E	0.06
HOSI4	HOSPERS	IA	0.06E	0.06
BRTM7	INDEPENDENCE 39TH ST	MO	0.06E	0.06
INDM7	INDEPENDENCE,ADAIR C	MO	0.06	0.06
IRVN1	IRVINGTON	NE	0.06E	0.06
KCDM7	KC (HANNIBAL BRIDGE)	MO	0.06	0.06
KBRM7	KC BLUE RIDGE BLVD	MO	0.06	0.06
TFCM7	KC TOWN FORK CREEK	MO	0.06E	0.06
KGLM7	KINGSVILLE	MO	0.06E	0.06
LKCM7	LAKE CITY, LTL BLUE	MO	0.06	0.06
LERK1	LE ROY	KS	0.06E	0.06
SN0	LENORA	KS	0.06E	0.06
LNRK1	LENORA, NF SOLOMON R	KS	0.06E	0.06
LXGM7	LEXINGTON 2SSW	MO	0.06	0.06
LEXM7	LEXINGTON 3E	MO	0.06E	0.06
LNCK1	LINCOLNVILLE	KS	0.06E	0.06
CUST021	MERNA 11W	NE	0.06E	0.06
OLEK1	OLATHE 2W	KS	0.06E	0.06
KSJO11	OLATHE 4SE	KS	0.06E	0.06
OMLN1	OMAHA 5W	NE	0.06E	0.06
OMCN1	OMAHA 6NW	NE	0.06E	0.06
BRRK1	OVERLAND PARK,BLUE R	KS	0.06	0.06
RESC2	RABBIT EARS	CO	0.06E	0.06
RICM7	RICHMOND, CROOKED R	MO	0.06E	0.06
RUSM8	RUSSELL	MT	0.06E	0.06
SPAW4	SOUTH PASS CITY	WY	0.06E	0.06
SOU	SOUTH PASS CITY 2WNW	WY	0.06E	0.06
SETM7	STET 1S	MO	0.06E	0.06
SLBI4	STORM LAKE 2E	IA	0.06E	0.06
WCRM8	WICKED CREEK RAWS	MT	0.06E	0.06
JDRM8	WINIFRED, JUDITH R	MT	0.06E	0.06
ZRCM8	ZURICH DIVERSION	MT	0.06E	0.06
ANAM8	ANACONDA	MT	0.05E	0.05
CUST014	ANSELMO 12WSW	NE	0.05E	0.05
ANSN1	ANSELMO 2SE	NE	0.05E	0.05
ARZM7	ARCHIE GDDS	MO	0.05E	0.05

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ARHM7	ARCHIE, SO GRAND R	MO	0.05	0.05
ATAM7	ATLANTA RAWS	MO	0.05	0.05
BROM8	AUGUSTA 12ENE	MT	0.05E	0.05

ASTM8	AUGUSTA, ELK CR	MT	0.05E	0.05
AUGM8	AUGUSTA, ELK CR	MT	0.05E	0.05
FRON005	BARTLEY 9NNW	NE	0.05E	0.05
BEYM7	BETHANY, E FK BIG CR	MO	0.05	0.05
BEGM7	BLUE SPRINGS	MO	0.05E	0.05
DYTW4	DAYTON	WY	0.05E	0.05
DNSI4	DENISON	IA	0.05	0.05
EGLM8	EAST GLACIER	MT	0.05E	0.05
ELMM7	ELM (POWELL GARDENS)	MO	0.05E	0.05
ESTI4	ESTHERVILLE 2N	IA	0.05	0.05
GFWM8	FAIRFIELD 8NE	MT	0.05E	0.05
BRAM8	GEYSER 7NE RAWS	MT	0.05E	0.05
GRCW4	GRANITE CREEK	WY	0.05E	0.05
CABN1	HARRY STRUNK RES	NE	0.05	0.05
HLKI4	HAVELOCK	IA	0.05E	0.05
HIGM7	HIGGINSVILLE	MO	0.05	0.05
HVRS2	HOOVER	SD	0.05	0.05
HORI4	HORNICK 5S	IA	0.05E	0.05
IRWI4	IRWIN 3ESE	IA	0.05E	0.05
JACM8	JACKSON	MT	0.05E	0.05
ICAM7	K C (OP ALERT #1800)	MO	0.05E	0.05
ICBM7	K C (OP ALERT #1900)	MO	0.05E	0.05
KCWM7	KC (NEW SANTA FE)	MO	0.05	0.05
KRRM7	KC ROCKHILL,BRUSH CR	MO	0.05E	0.05
LEBI4	LEBANON 4SE	IA	0.05E	0.05
MAZM7	MADISON	MO	0.05E	0.05
MCLM8	MC LEOD 12SSW	MT	0.05E	0.05
MRLI4	MERRILL, FLOYD R	IA	0.05E	0.05
TCKW4	NORRIS JUNCTION 1NW	WY	0.05E	0.05
KSNT2	NORTON 1E	KS	0.05E	0.05
OPFK1	O P #1400 (WATFD PL)	KS	0.05E	0.05
ODSM7	ODESSA 4SE	MO	0.05E	0.05
MOLF1	ODESSA 6SSE	MO	0.05E	0.05
OLAK1	OLATHE 3E	KS	0.05E	0.05
KSJO14	OLATHE 3ENE	KS	0.05E	0.05
OMHN1	OMAHA, MISSOURI R	NE	0.05E	0.05
PULI4	PAULLINA	IA	0.05E	0.05
PTRI4	PETERSON,LTL SIOUX R	IA	0.05E	0.05
POWW4	POWELL RADIO	WY	0.05E	0.05
RABN1	RALSTON	NE	0.05E	0.05
RANI4	RANDOLPH	IA	0.05E	0.05
RDPI4	RANDOLPH 1W, W NISH	IA	0.05E	0.05
RCH	RED CANYON	WY	0.05E	0.05
RWYM7	RIDGEWAY	MO	0.05	0.05
RKVI4	ROCK VALLEY, ROCK R	IA	0.05	0.05
WREM8	ROSCOE, W ROSEBUD CR	MT	0.05E	0.05
RHVI4	RUTHVIN	IA	0.05E	0.05
SOUI4	SIOUX CITY 8N	IA	0.05E	0.05
SIOI4	SIOUX CITY, PERRY CR	IA	0.05	0.05
SXRI4	SIOUX RAPIDS 4E	IA	0.05E	0.05

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SPNN1	SPRINGFIELD 7E	NE	0.05	0.05

ORPK1	STANLEY	KS	0.05E	0.05
STAK1	STANLEY 3S DCP	KS	0.05	0.05
STWK1	STILWELL	KS	0.05E	0.05
SLYK1	STILWELL 1N	KS	0.05E	0.05
TBRM8	TIBER DAM	MT	0.05E	0.05
HUTM8	UTICA 11WSW	MT	0.05E	0.05
VALM7	VALLEY CITY	MO	0.05	0.05
CUST015	ANSELMO 9NW	NE	0.04E	0.04
APCM7	APPLETON CITY	MO	0.04	0.04
ARNN1	ARNOLD	NE	0.04E	0.04
CRDK1	AUGULIS, RICH	KS	0.04E	0.04
AVOI4	AVOCA	IA	0.04E	0.04
BCRW4	BATES CREEK	WY	0.04E	0.04
BNNN1	BENNET	NE	0.04E	0.04
BLIM7	BLAIRSTOWN	MO	0.04E	0.04
BLRM7	BLAIRSTOWN, BIG CR	MO	0.04	0.04
BLKI4	BLOCKTON 1W	IA	0.04E	0.04
BONW4	BONDURANT SCHOOL	WY	0.04E	0.04
BYRI4	BOYER 4SE	IA	0.04E	0.04
BUFC2	BUFFALO PARK	CO	0.04E	0.04
BYI	BURLEY AIRPORT	ID	0.04E	0.04
MOFSA013	BUTLER 1SSW	MO	0.04E	0.04
CPMM7	CAPLINGER MILLS 1N	MO	0.04E	0.04
CHOM7	CHILLICOTHE RAWS	MO	0.04	0.04
CVDM8	CHINOOK 21SE	MT	0.04E	0.04
CUDM8	CLEVELAND 5ENE	MT	0.04E	0.04
COII4	COIN	IA	0.04E	0.04
CLMM7	COLOMA	MO	0.04	0.04
CORW4	CORA	WY	0.04E	0.04
DEVW4	DEAVER	WY	0.04E	0.04
DERM8	DEER LODGE 3W	MT	0.04E	0.04
DIAK1	DIAMOND SPRINGS	KS	0.04E	0.04
EKHM8	ELKHORN RAWS	MT	0.04	0.04
FRMN1	FAIRMONT	NE	0.04	0.04
FNDN1	FRIEND 3E	NE	0.04	0.04
FOD	FT DODGE	IA	0.04E	0.04
GAAM8	GALENA RAWS	MT	0.04E	0.04
GBNM8	GIBSON 2NE	MT	0.04E	0.04
GBSM8	GIBSON 4SW	MT	0.04E	0.04
GLAM7	GLADSTONE	MO	0.04E	0.04
HILK1	HILLSDALE LAKE	KS	0.04E	0.04
HGMM8	HINGHAM 12N	MT	0.04E	0.04
MOJH1	HOLDEN 6S	MO	0.04E	0.04
SXNI4	JAMES 4W	IA	0.04E	0.04
ICSM7	KANSAS CITY 103RD ST	MO	0.04E	0.04
KCPM7	KANSAS CITY 1SE	MO	0.04E	0.04
KWPM7	KC WARD PARKWAY	MO	0.04	0.04
WATM7	KC WATTS MILLS	MO	0.04E	0.04
LAA	LAMAR	CO	0.04	0.04
4LJ	LAMAR	CO	0.04E	0.04
LEAK1	LEAWOOD	KS	0.04E	0.04
ICLK1	LEAWOOD, INDIAN CR	KS	0.04	0.04

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MADM7	MADISON	MO	0.04E	0.04
MOME1	MADISON	MO	0.04E	0.04
MCJN1	MCCOOL JUNCTION	NE	0.04E	0.04
BOUM8	MONTANA DEV CENTER	MT	0.04E	0.04
MRNK1	MORAN	KS	0.04E	0.04
NRBI4	NORTHBORO	IA	0.04E	0.04
OPDK1	O P #1200 (MARTY LN)	KS	0.04	0.04
OPGK1	O P #1600 (HAWTH VY)	KS	0.04E	0.04
CBYN1	OMAHA	NE	0.04E	0.04
OVNN1	OMAHA 9NW	NE	0.04E	0.04
OTM	OTTUMWA	IA	0.04	0.04
RAYN1	RAYMOND 4W	NE	0.04E	0.04
ROBM8	ROBERTS 1N	MT	0.04E	0.04
SHRW4	SHIRLEY BASIN	WY	0.04E	0.04
HKMN1	STAGECOACH LAKE	NE	0.04E	0.04
STKN1	STOCKVILLE	NE	0.04E	0.04
STDK1	STUDLEY 9NNW	KS	0.04E	0.04
TOKK1	TOPEKA WATERWORKS	KS	0.04E	0.04
TOWC2	TOWER	CO	0.04E	0.04
TURM8	TURNER	MT	0.04E	0.04
TNRM8	TURNER 11N	MT	0.04E	0.04
UION1	UNION, WEEPING WATER	NE	0.04E	0.04
UNTK1	UNIONTOWN	KS	0.04E	0.04
VLYM7	VALLEY CITY 1NW	MO	0.04	0.04
WARMB	WARREN, CRAIG	KS	0.04E	0.04
WPNN1	WEST POINT,ELKHORN R	NE	0.04E	0.04
WSRM8	WHITE SULPHUR SPRNGS	MT	0.04E	0.04
WHSC2	WILD HORSE 11SSE	CO	0.04E	0.04
BHRM8	YELLOWTAIL DAM	MT	0.04E	0.04
ZNAS2	ZEONA 10SSW	SD	0.04E	0.04
AURN1	AURORA	NE	0.03E	0.04
BEGN1	BENNINGTON 3E	NE	0.03E	0.04
BRDN1	BRADSHAW	NE	0.03E	0.04
KNEM8	BRADY 27ENE	MT	0.03E	0.04
BBRW4	BUFFALO BILL ABV	WY	0.03E	0.04
CPPM7	CAPLINGER MILLS	MO	0.03E	0.04
CTLS2	CASTLEROCK 4NW	SD	0.03E	0.04
CLFK1	CLAFLIN	KS	0.03	0.04
CLNM7	CLINTON	MO	0.03	0.04
CNGK1	COUNCIL GROVE DAM	KS	0.03	0.04
CTEN1	CRETE	NE	0.03E	0.04
CRTN1	CRETE 1W, BIG BLUE R	NE	0.03E	0.04
DMX	DES MOINES WFO	IA	0.03E	0.04
DRGN1	DORCHESTER, BIG BLUE	NE	0.03E	0.04
FTCN1	FORT CALHOUN	NE	0.03E	0.04
FCLN1	FORT CALHOUN 4W	NE	0.03	0.04
LGNM8	FORT LOGAN 4ESE	MT	0.03E	0.04
FMTN1	FREMONT	NE	0.03	0.04
GILI4	GILLETTE GROVE	IA	0.03E	0.04
GRTN1	GRETNA 3ESE	NE	0.03E	0.04
GRAN1	GRETNA 4NE	NE	0.03	0.04
GRDK1	GRIDLEY	KS	0.03E	0.04
HALN1	HALLAM 2N	NE	0.03E	0.04

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HBGI4	HAMBURG #2	IA	0.03E	0.04
HMBI4	HAMBURG, NISHNABOTNA	IA	0.03	0.04
HLMM8	HARLEM 20S	MT	0.03E	0.04
PCHI4	HINTON 4W, PERRY CR	IA	0.03E	0.04
HOMN1	HOMER 3NE	NE	0.03E	0.04
IMOI4	IMOGENE 3N	IA	0.03E	0.04
INMK1	INMAN	KS	0.03E	0.04
IRLN1	IRVINGTON 4NW	NE	0.03E	0.04
JERM7	JERICO SPRINGS 3S	MO	0.03E	0.04
KCSM7	KANSAS CITY SOUTH	MO	0.03E	0.04
LWD	LAMONI	IA	0.03	0.04
3OI	LAMONI	IA	0.03	0.04
LPRW4	LAPRELE CREEK	WY	0.03E	0.04
KSJO10	LENEXA 2NE	KS	0.03E	0.04
LNXI4	LENOX	IA	0.03E	0.04
LNNI4	LINN GROVE	IA	0.03E	0.04
NRLN1	NORTH LOUP	NE	0.03E	0.04
OPCK1	O P #1100 (CTY HALL)	KS	0.03E	0.04
ODEI4	ODEBOLT	IA	0.03E	0.04
FSNN1	OMAHA AIRPORT	NE	0.03E	0.04
KSJO8	OVERLAND PARK 4NNE	KS	0.03E	0.04
PAOK1	PAOLA	KS	0.03E	0.04
RANC2	RAND AMRAD	CO	0.03E	0.04
SSKW4	RIVERSIDE, SPRING CR	WY	0.03E	0.04
MOFSA007	RUSH HILL 3S	MO	0.03E	0.04
RUSK1	RUSSELL 5N, SALINE R	KS	0.03	0.04
SHWK1	SHAWNEE 2S	KS	0.03E	0.04
SHRM5	SHERBURN 3WSW	MN	0.03E	0.04
SPCW4	SOUTH PASS CITY 3NNE	WY	0.03E	0.04
SSCN1	SOUTH SIOUX CITY	NE	0.03E	0.04
SPGN1	SPRAGUE 3W	NE	0.03E	0.04
SNZM7	SUMNER 2SW, GRAND R	MO	0.03E	0.04
SMNM7	SUMNER 3SW	MO	0.03E	0.04
TWRW4	TOWER FALLS	WY	0.03E	0.04
TFAW4	TOWER FALLS STATION	WY	0.03E	0.04
TOWM8	TOWNSEND	MT	0.03E	0.04
TTNM7	TRENTON	MO	0.03	0.04
UUUK1	UNIONTOWN,MARMATON R	KS	0.03E	0.04
URHM7	URICH 1S, SO GRAND R	MO	0.03E	0.04
VPRN1	VALPARAISO	NE	0.03E	0.04
ZEFK1	VICTORIA 7N	KS	0.03E	0.04
WIFC2	WILLIAMS FORK DAM	CO	0.03E	0.04
WINM8	WINIFRED	MT	0.03E	0.04
YLAW4	YELLOWSTONE(MAMMOTH)	WY	0.03E	0.04
BKCI4	AKRON 11E	IA	0.02E	0.02
ALSM8	ALDER 17S	MT	0.02E	0.02
ADRM8	ALDER 19S	MT	0.02E	0.02
AUSM8	AUSTIN 1W	MT	0.02E	0.02
BVRN1	BEAVER CROSSING	NE	0.02E	0.02
BEDI4	BEDFORD	IA	0.02	0.02
BGDW4	BIG GOOSE CREEK ABV	WY	0.02E	0.02
BOHN1	BOYSTOWN #2	NE	0.02E	0.02
BEKM7	BROOKFIELD	MO	0.02E	0.02

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STATION ID	DESCRIPTION	STATE	06/02	PERIOD SUM
BRKM7	BROOKFIELD	MO	0.02	0.02
BLFM8	BYNUM 7NW	MT	0.02E	0.02
CRLM7	CARROLLTON	MO	0.02	0.02
CAXM7	CARROLLTON,WAKENDA C	MO	0.02	0.02
CAWM8	CARTER 14W	MT	0.02E	0.02
CSPW4	CASPER MOUNTAIN	WY	0.02E	0.02
CHUM7	CHULA, MUDDY CR	MO	0.02E	0.02
CLKM8	CLARK CANYON DAM	MT	0.02E	0.02
CLOI4	CLIO 4NW	IA	0.02E	0.02
SFOW4	CODY 19SW	WY	0.02E	0.02
COYW4	CODY 21SW	WY	0.02E	0.02
CNYK1	COLONY	KS	0.02E	0.02
COYI4	CORYDON 2NE	IA	0.02E	0.02
DODM8	DODSON	MT	0.02E	0.02
DMRM8	DODSON 2W, MILK R	MT	0.02E	0.02
DOOI4	DOON 4ENE	IA	0.02E	0.02
ELLK1	ELLIS, BIG CREEK	KS	0.02E	0.02
EST	ESTHERVILLE	IA	0.02	0.02
BHCM7	EXCELLO 3WSW	MO	0.02E	0.02
FFDM8	FAIRFIELD	MT	0.02E	0.02
GARN1	GARLAND	NE	0.02E	0.02
GLNW4	GLENROCK, N PLATTE R	WY	0.02E	0.02
GTOM8	GOAT HAUNT MOUNTAIN	MT	0.02E	0.02
GRYI4	GRAY	IA	0.02E	0.02
GTBK1	GREAT BEND	KS	0.02E	0.02
MOPS2	GREEN RIDGE	MO	0.02E	0.02
GEEM7	GREEN RIDGE 3SW	MO	0.02	0.02
GSBN1	GRETNA 3NE	NE	0.02E	0.02
HNKI4	HANCOCK, WEST NISH	IA	0.02E	0.02
HRTM8	HEART BUTTE	MT	0.02	0.02
HTBM8	HEART BUTTE 1NW	MT	0.02E	0.02
HICN1	HICKMAN	NE	0.02E	0.02
HCKN1	HICKMAN WAGONTRAIN L	NE	0.02E	0.02
HLBK1	HILLSBORO	KS	0.02	0.02
HLSK1	HILLSDALE 3SW	KS	0.02	0.02
HOPM7	HOPKINS	MO	0.02	0.02
HOKI4	HORNICK, W FK DITCH	IA	0.02	0.02
HHRW4	HYATTVILLE 6NE	WY	0.02E	0.02
INNK1	INMAN	KS	0.02E	0.02
KNYM7	KANSAS CITY 71 HWY	MO	0.02E	0.02
LCRW4	LARSEN CREEK SNOTEL	WY	0.02E	0.02
LDRI1	LEADORE	ID	0.02E	0.02
LENI4	LEON 6ESE	IA	0.02	0.02
YQL	LETHBRIDGE	AB	0.02E	0.02
LRRM8	LIMA RESERVOIR	MT	0.02E	0.02
LNK	LINCOLN	NE	0.02	0.02
LVNN1	LINCOLN, STEVENS CR	NE	0.02	0.02
LVGM8	LIVINGSTON 12S	MT	0.02E	0.02
LBRM7	LONG BRANCH RES	MO	0.02	0.02
MSDK1	LOONEY, MIKE	KS	0.02E	0.02
LOUN1	LOUISVILLE, PLATTE R	NE	0.02E	0.02

MALN1	MALCOLM	NE	0.02	0.02
MNLN1	MANLEY	NE	0.02E	0.02

1NWSRFS FORECAST SYSTEM - PROGRAM PPDUTIL (VERSION: ob8.1 - 03/20/07) USER=MBRFC
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0STATION ID	DESCRIPTION	STATE	06/02	PERIOD SUM
MDLM8	MCLEOD	MT	0.02E	0.02
MNON8	MINOT EXP STATION	ND	0.02	0.02
MQM	MONIDA	MT	0.02E	0.02
MJTW4	MORAN 5SW	WY	0.02E	0.02
MRAW4	MORAN 5WSW	WY	0.02E	0.02
MTAI4	MOUNT AYR	IA	0.02E	0.02
MSSM7	MUSSEL FORK	MO	0.02	0.02
OPEK1	O P #1300 (CORP WDS)	KS	0.02E	0.02
OHMN1	OMAHA	NE	0.02E	0.02
OMA	OMAHA EPPLEY FIELD	NE	0.02	0.02
OHAN1	OMAHA, BIG PAPILLION	NE	0.02E	0.02
OPNK1	OVERLAND PARK	KS	0.02E	0.02
PSBN1	PAPILLION 6NW	NE	0.02E	0.02
MLDN1	PAPIO CREEK DAM	NE	0.02E	0.02
PHLN1	PHILLIPS 4SE	NE	0.02E	0.02
PINW4	PINEDALE 1NE	WY	0.02E	0.02
PLDN1	PLEASANTDALE 2NW	NE	0.02	0.02
PFSW4	POWELL FIELD STATION	WY	0.02E	0.02
PGHI4	PRIMGHAR	IA	0.02E	0.02
RNDC2	RAND	CO	0.02E	0.02
REJ	REDIG	SD	0.02E	0.02
RKRI4	ROCK RAPIDS	IA	0.02E	0.02
RAPI4	ROCK RAPIDS, ROCK R	IA	0.02E	0.02
RDYM8	RUDYARD 21N	MT	0.02E	0.02
SPPM8	SAPPINGTON HWY BR	MT	0.02E	0.02
SRGN1	SARGENT	NE	0.02E	0.02
SMMM8	SIMMS 1NE	MT	0.02E	0.02
SSRM8	SIMMS, SUN R	MT	0.02E	0.02
FSD	SIOUX FALLS	SD	0.02	0.02
SXFS2	SIOUX FALLS NO CLIFF	SD	0.02E	0.02
FSDS2	SIOUX FALLS WFO	SD	0.02E	0.02
SBLW4	SODA BUTTE CREEK	WY	0.02E	0.02
SET	ST CHARLES	MO	0.02	0.02
LINC027	STAPLETON 8SSE	NE	0.02E	0.02
TOPK1	TOPEKA, SOLDIER CR	KS	0.02E	0.02
UIHM7	URICH 2SW	MO	0.02E	0.02
VLRW4	VALLEY 9NNE	WY	0.02E	0.02
VACM8	VIRGINIA CITY	MT	0.02E	0.02
OADK1	WAKEENEY	KS	0.02E	0.02
WRRM7	WARRENSBURG 4NW	MO	0.02	0.02
WATS2	WATERTOWN	SD	0.02E	0.02
WBWS2	WATERTOWN (BROADWAY)	SD	0.02	0.02
WRTS2	WATERTOWN 1W	SD	0.02E	0.02
WAVM7	WAVERLY	MO	0.02E	0.02
WVYM7	WAVERLY	MO	0.02E	0.02
WVZM7	WAVERLY GDDS	MO	0.02E	0.02
WEEN1	WEEPING WATER 3N	NE	0.02E	0.02
WPTN1	WEST POINT	NE	0.02	0.02
COCH27	WILD HORSE 1NW	CO	0.02E	0.02

WFDC2	WILLIAMS FORK DAM	CO	0.02E	0.02
YWG	WINNEPEG	MB	0.02	0.02
YLWW4	YELLOWSTONE(MAMMOTH)	WY	0.02E	0.02
ABTK1	ALBERT 5SE	KS	0.01E	0.01

1NWSRFS FORECAST SYSTEM - PROGRAM PPDUTIL (VERSION: ob8.1 - 03/20/07) USER=MBRFC
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0STATION ID	DESCRIPTION	STATE	06/02	PERIOD SUM
ALTS2	ALCESTER	SD	0.01E	0.01
ALRI4	ALLERTON	IA	0.01	0.01
BUOS2	ANTELOPE RANGER STA	SD	0.01E	0.01
APKI4	ARNOLDS PARK	IA	0.01E	0.01
AHLN1	ASHLAND	NE	0.01E	0.01
ASDN1	ASHLAND #1	NE	0.01E	0.01
COWW4	BAGGS 21NNE	WY	0.01E	0.01
BSCW4	BASE CAMP, MORAN 9NE	WY	0.01E	0.01
BDE	BAUDETTE AIRPORT	MN	0.01E	0.01
BFOS2	BELLE FOURCHE 22NNW	SD	0.01E	0.01
BLMI4	BLOOMFIELD 1WNW	IA	0.01	0.01
BOYN1	BOYSTOWN	NE	0.01E	0.01
BRNC2	BRANDON	CO	0.01E	0.01
BRRM8	BRENNER RAWS	MT	0.01E	0.01
BKTI4	BROKEN KETTLE RAWS	IA	0.01E	0.01
BRWM8	BROWNING	MT	0.01E	0.01
BFFS2	BUFFALO	SD	0.01E	0.01
2WX	BUFFALO	SD	0.01	0.01
BUFS2	BUFFALO	SD	0.01E	0.01
ATRS2	BUFFALO 14SE	SD	0.01E	0.01
BULS2	BUFFALO 14SSW AMRAD	SD	0.01E	0.01
BLBW4	BUFFALO BILL DAM	WY	0.01E	0.01
BWXW4	BUFFALO BILL RES	WY	0.01E	0.01
BTKM8	BURNT CREEK RAWS	MT	0.01E	0.01
BUTM7	BUTLER	MO	0.01	0.01
CNSM7	CAINSVILLE	MO	0.01	0.01
CAHM7	CALHOUN	MO	0.01E	0.01
CMNM8	CAMERON	MT	0.01E	0.01
CNNS2	CANTON	SD	0.01E	0.01
CNTS2	CANTON (AMRAD)	SD	0.01E	0.01
CANS2	CANTON, BIG SIOUX R	SD	0.01E	0.01
CSHM8	CASHE CREEK	MT	0.01E	0.01
COUM8	CHOTEAU	MT	0.01E	0.01
CHRW4	CHRISTINA LAKE	WY	0.01E	0.01
CINW4	CINNABAR PARK	WY	0.01E	0.01
CLDI4	CLARINDA	IA	0.01	0.01
CFHM7	CLIFTON HILL	MO	0.01E	0.01
CITM7	CLINTON RAWS	MO	0.01	0.01
OBAW4	CODY 12SE	WY	0.01E	0.01
COOW4	CODY 5SE	WY	0.01E	0.01
CCRM7	CONCORDIA	MO	0.01	0.01
CRNI4	CORNING	IA	0.01E	0.01
CSTI4	CRESCENT	IA	0.01E	0.01
CTB	CUT BANK AIRPORT	MT	0.01	0.01
DWIN1	DE WITT	NE	0.01E	0.01
DPCM8	DEEP CREEK PASS	MT	0.01E	0.01
DTON1	DENTON 2N	NE	0.01E	0.01

DERI4	DERBY	IA	0.01E	0.01
DIKI4	DICKENS	IA	0.01E	0.01
ZOFK1	DIGHTON	KS	0.01E	0.01
DLLM8	DILLON (UM WESTERN)	MT	0.01E	0.01
DINM8	DILLON 9SSE	MT	0.01E	0.01
DLN	DILLON AIRPORT	MT	0.01	0.01

1NWSRFS FORECAST SYSTEM - PROGRAM PPDUTIL (VERSION: ob8.1 - 03/20/07) USER=MBRFC
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0STATION ID	DESCRIPTION	STATE	06/02	PERIOD SUM
DDGN1	DODGE	NE	0.01E	0.01
DDC	DODGE CITY	KS	0.01	0.01
DSNM8	DODSON 11N	MT	0.01E	0.01
RASW4	DUBOIS 22SW	WY	0.01E	0.01
DUNN1	DUNBAR 4N	NE	0.01E	0.01
ERNM8	EASTERN CRSSNG	MT	0.01E	0.01
EMLS2	ELM LAKE 4NW	SD	0.01E	0.01
EMDK1	ELMDALE 3NE	KS	0.01E	0.01
EMDN1	EMERALD 1W	NE	0.01E	0.01
ERLN1	EMERALD 2NW	NE	0.01E	0.01
ENSM8	ENNIS	MT	0.01E	0.01
ENNM8	ENNIS RAWS	MT	0.01E	0.01
ELLS2	FREDERICK 4SW	SD	0.01E	0.01
ERFS2	FREDERICK 9W, ELM R	SD	0.01	0.01
GTAK1	GALATIA 4E	KS	0.01E	0.01
GRGI4	GEORGE	IA	0.01E	0.01
GOEN1	GOEHNER	NE	0.01E	0.01
CSFC2	GOULD 4SE	CO	0.01E	0.01
GRIN1	GRAND ISLAND 5SE	NE	0.01E	0.01
GNTM8	GRANT	MT	0.01E	0.01
GREK1	GREAT BEND 2N	KS	0.01E	0.01
GBD	GREAT BEND AIRPORT	KS	0.01E	0.01
HGSC2	HAGERMAN TUNNEL	CO	0.01E	0.01
HARS2	HARDING 3SE	SD	0.01E	0.01
FBLM8	HARLEM 4SSE	MT	0.01	0.01
HBGM8	HEBGEN DAM	MT	0.01E	0.01
HBDM8	HEBGEN DAM	MT	0.01E	0.01
SHIM5	HILLS	MN	0.01E	0.01
HOWN1	HOWELLS	NE	0.01E	0.01
HUMM7	HUMANSVILLE 2SE	MO	0.01E	0.01
HNZM7	HUNTSVILLE, CHARITON	MO	0.01	0.01
INBS2	INDIAN BUTTE RAWS	SD	0.01E	0.01
INWI4	INWOOD	IA	0.01E	0.01
IWDI4	INWOOD	IA	0.01E	0.01
IRHW4	IRISH ROCK	WY	0.01E	0.01
ITHN1	ITHACA, WAHOO CR	NE	0.01E	0.01
JCKM5	JACKSON	MN	0.01E	0.01
KEBN1	KENNARD 2SE	NE	0.01E	0.01
MOFSA041	KEYTESVILLE	MO	0.01E	0.01
KRAN1	KRAMER 2E	NE	0.01E	0.01
KZBS2	KRANZBURG	SD	0.01E	0.01
KAMS2	LAKE KAMPESKA	SD	0.01E	0.01
LRAM7	LAMAR 6N	MO	0.01E	0.01
LMRW4	LAMAR RANGER STATION	WY	0.01E	0.01
LDOM7	LAREDO, MEDICINE CR	MO	0.01	0.01

RBYM8	LAURIN 2SW	MT	0.01E	0.01
HCMC2	LEADVILLE 8SW	CO	0.01E	0.01
SODK1	LENEXA #2	KS	0.01E	0.01
LLAS2	LEOLA	SD	0.01E	0.01
LRYK1	LEROY	KS	0.01E	0.01
LESN1	LESHARA, PLATTE R	NE	0.01E	0.01
LSTI4	LESTER	IA	0.01E	0.01
LMCN1	LINCOLN 4WSW	NE	0.01E	0.01

1NWSRFS FORECAST SYSTEM - PROGRAM PPDUTIL (VERSION: ob8.1 - 03/20/07) USER=MBRFC
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0STATION ID	DESCRIPTION	STATE	06/02	PERIOD SUM
LOKN1	LINCOLN 5NW, OAK CR	NE	0.01	0.01
LSCN1	LINCOLN 7NW, SALT CR	NE	0.01	0.01
LNBN1	LINCOLN FIRE STA 3	NE	0.01E	0.01
LLNN1	LINCOLN FIRE STA 5	NE	0.01E	0.01
LNSM7	LINNEUS, LOCUST CR	MO	0.01	0.01
LROM7	LOWRY CITY	MO	0.01E	0.01
LWRM7	LOWRY CITY 5E	MO	0.01E	0.01
LUDS2	LUDLOW 3SSE	SD	0.01E	0.01
QADW4	MAMMOTH 25WSW	WY	0.01E	0.01
MRNS2	MAURINE 12SW	SD	0.01E	0.01
0853N8	MAX 8N	ND	0.01E	0.01
YXH	MEDICINE HAT	AB	0.01E	0.01
MTEW4	MEETEETSE	WY	0.01E	0.01
PCMI4	MERRILL 6SW	IA	0.01E	0.01
MFRI4	MILFORD 4NW	IA	0.01E	0.01
MIFI4	MILFORD, LTL SIOUX R	IA	0.01E	0.01
MWBN1	MILLARD	NE	0.01E	0.01
LSNN8	MINOT 3SE	ND	0.01E	0.01
GASN8	MINOT 4W	ND	0.01E	0.01
MYSM8	MYSTIC LAKE	MT	0.01E	0.01
NEBN1	NEBRASKA CITY	NE	0.01E	0.01
NCYN1	NEBRASKA CITY 2NW	NE	0.01E	0.01
NWLS2	NEWELL	SD	0.01E	0.01
EWK	NEWTON AIRPORT	KS	0.01E	0.01
NBDN1	NORTH BEND, PLATTE R	NE	0.01E	0.01
OPBK1	O P #1700 (JCCC)	KS	0.01E	0.01
OLDW4	OLD BATTLE	WY	0.01E	0.01
FOFW4	OLD FAITHFUL	WY	0.01E	0.01
OMBN1	OMAHA 8W	NE	0.01E	0.01
OMAN1	OMAHA STANDNG BEAR L	NE	0.01E	0.01
OSCM7	OSCEOLA	MO	0.01E	0.01
KSJO15	OVERLAND PARK 4NNW	KS	0.01E	0.01
PPLN1	PAPILLION	NE	0.01E	0.01
PWBN1	PAPILLION #2	NE	0.01E	0.01
ZPC	PINCHER CR	AB	0.01E	0.01
PNDW4	PINEDALE	WY	0.01E	0.01
REDM8	RED LODGE 6SSW	MT	0.01E	0.01
OWLS2	RED OWL	SD	0.01E	0.01
RWCN1	RED WILLOW (BLO DAM)	NE	0.01E	0.01
REDS2	REDIG 11NE	SD	0.01E	0.01
RENS2	RENNER	SD	0.01E	0.01
RXE	REXBURG AIRPORT	ID	0.01E	0.01
ENSI4	RIVERTON, EAST NISH	IA	0.01	0.01

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 WNSI4     RIVERTON, WEST NISH    IA          0.01       0.01
 RWCI4     ROCKWELL CITY #2       IA          0.01E      0.01
 ALRM8     RUBY DAM               MT          0.01E      0.01
 SCOK1     SCOTT CITY             KS          0.01E      0.01
 ZVGK1     SCOTT CITY 12SE        KS          0.01E      0.01
 SHDI4     SHELDON                IA          0.01       0.01
 SHLI4     SHELDON 1N, FLOYD R    IA          0.01E      0.01
 SHLC2     SHERIDAN LAKE          CO          0.01E      0.01
 SIDI4     SIDNEY                 IA          0.01       0.01
 SRRM8     SIERRA RAWS            MT          0.01E      0.01
1NWSRFS FORECAST SYSTEM - PROGRAM PPDUTIL  (VERSION: ob8.1      - 03/20/07)   USER=MBRFC
DATE=Jun  2, 2011 - 14:02:15
0
0STATION                                                    PERIOD
 ID        DESCRIPTION            STATE     06/02         SUM
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 SUX       SIOUX CITY             IA          0.01          0.01
 SXGI4     SIOUX CITY             IA          0.01E         0.01
 SFLS2     SIOUX FALLS 38A        SD          0.01E         0.01
 WCMS2     SIOUX FALLS 6SE        SD          0.01E         0.01
 SFKW4     SOUTH FORK             WY          0.01E         0.01
 SPRI4     SPIRIT LAKE            IA          0.01E         0.01
 SPRN1     SPRAGUE                NE          0.01E         0.01
 SPDM8     SPRINGDALE             MT          0.01E         0.01
 SMIN1     ST MICHAEL, S LOUP R   NE          0.01E         0.01
 SBTC2     STEAMBOAT SPRINGS      CO          0.01E         0.01
 SYCN1     SYRACUSE               NE          0.01E         0.01
 TABM8     TABLE MOUNTAIN         MT          0.01E         0.01
 TSTM8     TOSTON 5NW AGRIMET     MT          0.01E         0.01
 TOSM8     TOSTON, MISSOURI R     MT          0.01E         0.01
 TNRC2     TOWNER                 CO          0.01E         0.01
 UNIS2     UNION CENTER           SD          0.01E         0.01
 HRSS2     VALE 3NE, HORSE CR     SD          0.01E         0.01
 DUPM8     VALIER, DUPUYER CR     MT          0.01E         0.01
 VLVN8     VELVA                  ND          0.01E         0.01
 ZEEK1     VICTORIA 5ENE          KS          0.01E         0.01
 AXTM8     VIRGINIA CITY 15SE     MT          0.01E         0.01
 WKYK1     WAKEENEY               KS          0.01E         0.01
 WAAK1     WAKEENEY, SALINE R     KS          0.01E         0.01
 WAPW4     WAPITI 1NE             WY          0.01E         0.01
 WTON1     WATERLOO               NE          0.01E         0.01
 WTTS2     WATERTOWN (AMRAD)      SD          0.01E         0.01
 WBSS2     WATERTOWN, BIG SIOUX   SD          0.01          0.01
 BSWS2     WATERTOWN, BIG SIOUX   SD          0.01E         0.01
 WVRN1     WAVERLY                NE          0.01E         0.01
 WSYM8     WEST YELLOWSTONE       MT          0.01E         0.01
 WSSM8     WHITE SULPHUR SPRNGS   MT          0.01E         0.01
 WGSM8     WHITE SULPHUR SPRNGS   MT          0.01E         0.01
 SZL       WHITEMAN AFB           MO          0.01          0.01
 WILW4     WILLOW CREEK           WY          0.01E         0.01
 WISN1     WISNER                 NE          0.01E         0.01
 YOCK1     YOCEMENTO, BIG CR      KS          0.01E         0.01
 YTNN1     YUTAN                  NE          0.01E         0.01
 >>>>>>>> STOP
0**************************************************************************************
************************************
0               CPU   TIME USED =    0 MINUTES,  0 SECONDS
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0               CLOCK TIME USED =    0 MINUTES,  0 SECONDS
0*************************************************************************************************
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[redacted] NWO

From: [redacted] NWO
Sent: Thursday, June 02, 2011 8:53 AM
To: CENWO-EOC NWO
Cc: [redacted] NWO; [redacted] NWO; [redacted] NWO; Farhat, Jody S NWD02
Subject: FW: mainstem data for NWO sitrep 6/2/11 (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

-----Original Message-----
From: [redacted] NWO
Sent: Thursday, June 02, 2011 8:48 AM
To: [redacted] NWO; [redacted] NWO; [redacted] NWO
Cc: Farhat, Jody S NWD02
Subject: RE: mainstem data for NWO sitrep 6/2/11 (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

[redacted] - this needs to go to EM so they can compile into sitrep. Please send to CENWO-EOC and cc: [redacted], and I.

Alex - please coordinate bulletins with Roy.

Thanks,
[redacted]

-----Original Message-----
From: [redacted] NWO
Sent: Thursday, June 02, 2011 8:45 AM
To: [redacted] NWO; [redacted] NWO; [redacted] NWO
Cc: Farhat, Jody S NWD02
Subject: mainstem data for NWO sitrep 6/2/11 (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

Notes for data below: pool elevation is the midnight value; average inflows and average releases are average daily values; scheduled releases are the release from the project at the end of the day per yesterday's project orders.

Fort Peck Dam (MT)

6/1 Pool Elev: 2249.39 ft-msl

24-hr change: 0.46'

6/1 Ave Inflow: 73,000 cfs

6/1 Ave Release: 9,600 cfs

6/2 Scheduled Release: 15,000 cfs

Garrison Dam (ND)

6/1 Pool Elev: 1853.43 ft-msl

24-hr change: 0.09'

6/11 Ave Inflow: 131,000 cfs

6/1 Ave Release: 91,300 cfs

6/2 Scheduled Release: 110,000 cfs

Oahe Dam (SD)

6/1 Pool Elev: 1618.87 ft-msl

24-hr change: 0.11'

6/1 Ave Inflow: 101,000 cfs

6/1 Ave Release: 86,100 cfs

6/2 Scheduled Release: 85,000 cfs

Big Bend Dam (SD)

6/1 Pool Elev: 1419.46 ft-msl

24-hr change: 0.46'

6/1 Ave Inflow: 82,000 cfs

6/1 Ave Release: 69,500 cfs

6/2 Scheduled Release: 85,000 cfs

Fort Randall Dam (SD)

6/1 Pool Elev: 1359.99 ft-msl

24-hr change: 0.09'

6/1 Ave Inflow: 86,000 cfs

6/1 Ave Release: 79,900 cfs

6/2 Scheduled Release: 83,000 cfs

Gavins Point Dam (NE-SD)

6/1 Pool Elev: 1206.49 ft-msl

24-hr change: 0.04'

6/1 Ave Inflow: 81,000 cfs

6/1 Ave Release: 80,000 cfs

6/2 Scheduled Release: 85,000 cfs

[redacted]
Missouri Basin Water Managment Division
Northwestern Division
Corps of Engineers
[redacted]
[redacted]@usace.army.mil

Classification: UNCLASSIFIED
Caveats: NONE

Classification: UNCLASSIFIED
Caveats: NONE

Classification: UNCLASSIFIED
Caveats: NONE

[redacted] NWO

From: [redacted] NWO
Sent: Thursday, June 02, 2011 8:48 AM
To: [redacted] NWO; [redacted] NWO; [redacted] NWO
Cc: Farhat, Jody S NWD02
Subject: RE: mainstem data for NWO sitrep 6/2/11 (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

[redacted] - this needs to go to EM so they can compile into sitrep. Please send to CENWO-EOC and cc: [redacted], and I.

[redacted] - please coordinate bulletins with Roy.

Thanks,
[redacted]

-----Original Message-----
From: [redacted] NWO
Sent: Thursday, June 02, 2011 8:45 AM
To: [redacted] NWO; [redacted] NWO; [redacted] NWO
Cc: Farhat, Jody S NWD02
Subject: mainstem data for NWO sitrep 6/2/11 (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

Notes for data below: pool elevation is the midnight value; average inflows and average releases are average daily values; scheduled releases are the release from the project at the end of the day per yesterday's project orders.

Fort Peck Dam (MT)

6/1 Pool Elev: 2249.39 ft-msl

24-hr change: 0.46'

6/1 Ave Inflow: 73,000 cfs

6/1 Ave Release: 9,600 cfs

6/2 Scheduled Release: 15,000 cfs

Garrison Dam (ND)

6/1 Pool Elev: 1853.43 ft-msl

24-hr change: 0.09'

6/11 Ave Inflow: 131,000 cfs

6/1 Ave Release: 91,300 cfs

6/2 Scheduled Release: 110,000 cfs

Oahe Dam (SD)

6/1 Pool Elev: 1618.87 ft-msl

24-hr change: 0.11'

6/1 Ave Inflow: 101,000 cfs

6/1 Ave Release: 86,100 cfs

6/2 Scheduled Release: 85,000 cfs

Big Bend Dam (SD)

6/1 Pool Elev: 1419.46 ft-msl

24-hr change: 0.46'

6/1 Ave Inflow: 82,000 cfs

6/1 Ave Release: 69,500 cfs

6/2 Scheduled Release: 85,000 cfs

Fort Randall Dam (SD)

6/1 Pool Elev: 1359.99 ft-msl

24-hr change: 0.09'

6/1 Ave Inflow: 86,000 cfs

6/1 Ave Release: 79,900 cfs

6/2 Scheduled Release: 83,000 cfs

Gavins Point Dam (NE-SD)

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6/1 Ave Release: 80,000 cfs

6/2 Scheduled Release: 85,000 cfs

[redacted]
Missouri Basin Water Managment Division
Northwestern Division
Corps of Engineers
[redacted]
[redacted]@usace.army.mil

Classification: UNCLASSIFIED
Caveats: NONE

Classification: UNCLASSIFIED
Caveats: NONE

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From: [redacted] NWO
Sent: Thursday, June 02, 2011 8:45 AM
To: [redacted] NWO; [redacted] NWO; [redacted] NWO
Cc: Farhat, Jody S NWD02
Subject: mainstem data for NWO sitrep 6/2/11 (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

Notes for data below: pool elevation is the midnight value; average inflows and average releases are average daily values; scheduled releases are the release from the project at the end of the day per yesterday's project orders.

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6/2 Scheduled Release: 85,000 cfs

[redacted]
Missouri Basin Water Managment Division
Northwestern Division
Corps of Engineers
[redacted]
[redacted]@usace.army.mil

[redacted] NWO

From: Williamson, Eileen L NWO
Sent: Thursday, June 02, 2011 7:53 AM
To: Farmer, Monique L NWO
Cc: Farhat, Jody S NWD02
Subject: a good point from one of our fans (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

§ Adam Ellsworth - I just read (okay, skimmed) the past three years of Annual Operating Procedures, and it appears release rates at Garrison late this fall were *double* typical rates in order to return to normal flood handling capacity before December freeze-in. So while I have heard many people ask why they didn't increase releases all winter, the operating plan indicated they DID do that, and started this season with normal flood handling capacities. I'm sure they revise plans based on the past few weeks, but until now nobody imagined this much raiin - in thus much of the country - all at once.

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****

Eileen L. Williamson

Public Affairs Specialist

U.S. Army Corps of Engineers

Office: 402-995-2417

Mobile: 402-779-1448

eileen.l.williamson@usace.army.mil

Internet: nwo.usace.army.mil <https://www.nwo.usace.army.mil/>

Facebook: facebook.com/OmahaUSACE <http://www.facebook.com/OmahaUSACE>

Twitter: twitter.com/OmahaUSACE <http://www.twitter.com/OmahaUSACE>

****

Classification: UNCLASSIFIED
Caveats: NONE

[redacted] NWO

From: [redacted] NWO
Sent: Thursday, June 02, 2011 2:46 AM
To: [redacted] NWO; Schenk, Kathryn M NWO; Bertino, John J Jr NWO; Michaels, Robert J NWO; Farhat, Jody S NWD02; [redacted] NWO
Subject: FW: MRJIC Team Email #1

All:

Sending the below email to you as you may have others that would find all the links to the data in one email useful. Not all of it is up on the SharePoint MRJIC folder, but I anticipate it will be by COB 2 Jun. I am hopeful I will be departing the JIC by COB Thursday to return to my Branch duties/Congressional Liaison role and to finish transitioning those arrangements before I depart on maternity leave. It's been a 5 day marathon for me at 8 1/2 months pregnant...but nothing like the real marathon that it will be for all of you and the rest of the team and the hard work you are putting in and will be through the summer. I will miss being engaged with all of you during this historical time...but my clock is ticking and I need to plan efficient hand-offs for the good of the organization. I will look for all your star faces on the TV over the summer and the safety and health of everyone will be in my prayers. If I can help with anything, please don't hesitate to ask.

Thanks,
[redacted]

-----Original Message-----
From: [redacted] NWO
Sent: Thursday, June 02, 2011 2:33 AM
To: Blechinger, Erik T NWO; [redacted] NWO; [redacted] NWO; [redacted] NWD02; [redacted] NWK; [redacted] NWK; Johnston, Paul T HQ@ NWO; Lazo, Carlos J SPK; [redacted] NWD; [redacted] NWD; [redacted] NWO; Farmer, Monique L NWO; [redacted] ACE-IT; Blair, Amy E NWK; [redacted] NWK
Subject: MRJIC Team Email #1

[redacted]/Team:

We've all made great success over the last couple of days getting all the info identified in easy accessible places. Today the MRJIC site on the SharePoint was established, so Jennifer Salak will be working on Thursday to get many of our forms posted there. The link to the SharePoint is below, identified as #1.

As I believe has now been explained to all, the majority of the questions focus on releases from the reservoirs (#2), inundation maps (#3), stages (#4 and #5 and PDF), travel times (2 PDFs) and elevations (#6 - PDF at bottom).

1. MRJIC Sharepoint:
https://kme.usace.army.mil/NWD/NWO/PA/2011%20Flood%20Response%20Docs/Forms/AllItems.aspx

2. NWD Water Management Mainstem Regulation Forecast Releases (updated daily at 1800 hrs-night shift): http://www.nwd-mr.usace.army.mil/rcc/reports/twout.html
** The 6 reservoirs are listed across the top of the page.
** The days of the month are listed down the left side of the page.
** The four columns under each reservoir include: 24EL (midnight elevation -feet above mean sea level); 24ED (daily average inflows -kcfs); 24OD (daily average release - kcfs); 24GE (daily power generation - MWh); System SG (System Storage - note the if water is at top of

gates at every dam, total system storage is 73.1 million ac/ft); DSG (Daily Storage Game - in thousands ac/ft)

3. NWO Website that contains links to the inundation maps: http://www.nwo.usace.army.mil

4. Missouri River Stream Gage Daily Update (created for us and updated in Hydro daily by 0900 hrs): https://w3.nwo.usace.army.mil/hydro/water_control/bulletins/MRJIC.pdf
**The gages from Sioux City on below assume the 150kcfs from the reservoirs plus the projected maximum with below average and above average precipitation and tributary flows added in.
**Some record stages and flows are documented as well as we are sometimes asked.

5. Real-time page showing all stream gages listed in #4 above, the yellow spreadsheet (created for us): https://w3.nwo.usace.army.mil/hydro/mogages.htm
**With the rapid changes, this may be useful to offer the real time gage reading if asked.

6. Daily NWO CMT ~~briefs~~ (1300 hrs): The NWO EOC briefs (we need to access NWK's) can be found at https://kme.usace.army.mil/NWD/NWO/PA/Lists/Announcements/AllItems.aspx
**These provide summary of the EOC many ongoing actions, including the contracting and construction efforts in each state.

Other needed handouts that are posted on SharePoint:

"Missouri River Federal Levees - As of: XXX Date"
**Currently the version dated "As of 6/1 0800" is being used and is based on reservoir releases of 150kcfs. The same range of stage as discussed in #4 is reflected here with the addition of the information as to what stages the levees between Omaha and Rulo overtop. "L" in the levee name means "left bank" and "R" means "right bank".

"At Bankful - Travel Times in Days"
**This pdf shows the travel times from Gavins Point downstream to St. Louis.

"Travel Time to Key Locations on the Missouri River Main Stem at High Flows"
**This pdf shows the travel times including the reservoirs.

"Summary of Engineering Data - Missouri River Main Stem Reservoirs"
**This pdf is very detailed information about each reservoir. For example, it is useful in answering how much can pass through outlet works, power facilities and spillways as it has the design capacities listed.

"MR Elevations".
**Randy Behm created a book of elevations for each river mile for us on 6/1/2011. Multiple calls started coming in asking for elevation data. This scanned info should be helpful in answer the questions.

Finally, there is one more folder on the MRJIC Sharepoint that contains multiple documents that are good for recording daily actions, i.e. field escort, public query log, rumor query log.

Great job to all in getting the right tools in place.

[redacted]
Chief of Planning
Congressional Liaison
US Army Corps of Engineers
Omaha District

1616 Capitol Avenue
Omaha, NE 68102-4901
[redacted] (o)
[redacted] (c)

[redacted]

From: Farhat, Jody S NWD02
Sent: Thursday, June 02, 2011 8:29 AM
To: [redacted]
Subject: RE: a good point from one of our fans (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

His statement is correct. We evacuated all of last year's flood water by the start of this year's runoff season and had the full flood control capacity of the mainstem system available.

-----Original Message-----
From: [redacted]
Sent: Thursday, June 02, 2011 7:53 AM
To: [redacted]
Cc: Farhat, Jody S NWD02
Subject: a good point from one of our fans (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

§ Adam Ellsworth - I just read (okay, skimmed) the past three years of Annual Operating Procedures, and it appears release rates at Garrison late this fall were *double* typical rates in order to return to normal flood handling capacity before December freeze-in. So while I have heard many people ask why they didn't increase releases all winter, the operating plan indicated they DID do that, and started this season with normal flood handling capacities. I'm sure they revise plans based on the past few weeks, but until now nobody imagined this much raiin - in thus much of the country - all at once.

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****

[redacted]

Public Affairs Specialist

U.S. Army Corps of Engineers

[redacted]

[redacted]

[redacted]

Internet: nwo.usace.army.mil <https://www.nwo.usace.army.mil/>

Facebook: facebook.com/OmahaUSACE <http://www.facebook.com/OmahaUSACE>

Twitter: twitter.com/OmahaUSACE <http://www.twitter.com/OmahaUSACE>

****

Classification: UNCLASSIFIED
Caveats: NONE

Classification: UNCLASSIFIED
Caveats: NONE

[redacted]

From: Farhat, Jody S NWD02
Sent: Thursday, June 02, 2011 10:03 AM
To: [redacted]
Subject: FW: Kansas City District - Reservoir Release Scheduling (UNCLASSIFIED)
Attachments: Rainfall_1Jun2011.jpg

Classification: UNCLASSIFIED
Caveats: NONE

Fyi

-----Original Message-----
From: [redacted]
Sent: Thursday, June 02, 2011 10:01 AM
To: DLL-CENWD-PDR; MRJIC
Cc: [redacted]
Subject: FW: Kansas City District - Reservoir Release Scheduling (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

FYSA.

BLUF: More details to come from NWK Water Control as they assess lower Kansas River reservoir inflows and downstream conditions.

Tremendous rains in Kansas yesterday (see daily totals below and attached graphic). Kansas City District Water Control is scheduling flood control releases from Perry, Milford, Tuttle Creek and other lower Kansas River projects to attempt to evacuate any stored flood water before the sustained 150,000 cfs Gavins releases are made.

From NWK this morning (10:00 am): NWK is reducing lake releases based on current Kansas River control points. Perry Lake and Clinton Lake releases have been reduced to low flow releases. Releases from Tuttle Creek have been cut from 15,000 cfs to 7,000 cfs. Still releasing 9,000 cfs from Milford while we are evaluating downstream conditions. Will continue to monitor conditions below Tuttle and Milford. NWK will resume flood pool evacuation releases under the deviation as Kansas River conditions allow.

ID	DESCRIPTION	STATE	06/02	SUM
WKEK1	WAKEFIELD 4W	KS	8.65	8.65
CLAK1	CLAY CENTER #1	KS	7.22E	7.22
CYCK1	CLAY CENTER, REPUB R	KS	7.22E	7.22
CCRK1	CLAY CENTER	KS	6.88E	6.89
FCTK1	FACT 3W	KS	6.50	6.51
MTTK1	TUTTLE CREEK DAM	KS	5.76	5.77
RDHK1	RANDOLPH 4WNW	KS	5.41E	5.41
RDPK1	RANDOLPH, FANCY CR	KS	5.40E	5.41
LGFK1	LONGFORD	KS	5.31E	5.32
CUBK1	CUBA	KS	5.19	5.20
IONK1	IONIA	KS	4.59	4.60
AGNK1	AGENDA	KS	4.50	4.51
PRLK1	PARALLEL	KS	4.28E	4.29

MNTK1	MANHATTAN 4N	KS	4.11	4.12
CFTK1	CLIFTON	KS	3.95	3.96
MHTK1	MANHATTAN	KS	3.81	3.82
CLDK1	CLYDE, ELK CR	KS	3.77E	3.78
MHKK1	MANHATTAN, KANSAS R	KS	3.76E	3.77
CYDK1	CLYDE	KS	3.75E	3.76
MLTK1	MILTONVALE	KS	3.75E	3.76
SYLK1	SYLVAN GROVE 1NE	KS	3.70	3.71
GLNK1	GLEN ELDER DAM	KS	3.61E	3.62
CAWK1	CAWKER CITY	KS	3.50E	3.51
CHPK1	CHAPMAN, CHAPMAN CR	KS	3.47E	3.48
BLVK1	BELLEVILLE	KS	3.45E	3.46
GLDK1	GLEN ELDER 2SE	KS	3.40E	3.41
LBNK1	LEBANON	KS	3.38	3.39
MLFK1	MILFORD DAM	KS	3.38E	3.39
HNTK1	HUNTER	KS	3.24	3.25
SMCK1	SMITH CENTER	KS	3.21	3.22
ATNK1	ALTON 2SW	KS	3.10	3.11
BELK1	BELOIT	KS	3.08	3.09
CPMK1	CHAPMAN	KS	3.08	3.09
JWLK1	JEWELL	KS	2.97E	2.98
FRYK1	FT RILEY	KS	2.96E	2.97
3JC	JUNCTION CITY	KS	2.95E	2.96
JUCK1	JUNCTION CITY 4SSW	KS	2.91E	2.92
DWNK1	DOWNS	KS	2.89E	2.90
FRI	FT RILEY	KS	2.87	2.88
FTRK1	FT RILEY, KANSAS R	KS	2.87E	2.88
WAMK1	WAMEGO 4W	KS	2.84	2.85
EFFK1	EFFINGHAM	KS	2.82	2.83
HARK1	HARLAN	KS	2.80E	2.81
ETPK1	ENTERPRISE	KS	2.76	2.77
ENTK1	ENTERPRISE	KS	2.76E	2.77
MHK	MANHATTAN MUNICPL AP	KS	2.76	2.77
ABLK1	ABILENE	KS	2.69E	2.70
MNHK1	MANHATTAN 6S	KS	2.69E	2.70

1NWSRFS FORECAST SYSTEM - PROGRAM PPDUTIL (VERSION: ob8.1 - 03/20/07) USER=MBRFC
DATE=Jun 2, 2011 - 14:02:15
0

0STATION ID	DESCRIPTION	STATE	06/02	PERIOD SUM
MSCK1	MUSCOTAH, DELAWARE R	KS	2.69	2.70
KSMC2	BELOIT 8ESE	KS	2.67E	2.68
SIMK1	SIMPSON, SOLOMON R	KS	2.66	2.67
PTIK1	PORTIS, NF SOLOMON R	KS	2.54E	2.55
WMGK1	WAMEGO #2, KANSAS R	KS	2.53E	2.54
GLCK1	GLASCO	KS	2.48E	2.49
WGOK1	WAMEGO	KS	2.47E	2.48
GLAK1	GLASCO, SOLOMON R	KS	2.45E	2.46
MANK1	MANKATO	KS	2.45	2.46
LINK1	LINCOLN, SALINE R	KS	2.40	2.41
BADK1	BARNARD 7W	KS	2.37E	2.38
WDBK1	WOODBINE, LYONS CR	KS	2.34E	2.35
LOUK1	LOUISVILLE 5NE	KS	2.26E	2.27
FSTK1	FOSTORIA 7NW	KS	2.20	2.21
WODK1	WOODSTON, SF SOLOMON	KS	2.14	2.15
WLSK1	WILSON DAM	KS	2.13E	2.14

WSRK1	WILSON DAM, SALINE R	KS	2.12	2.13
VLYK1	VALLEY FALLS 3SW	KS	2.10	2.11
HADK1	HADDAM	KS	2.07	2.08
AURK1	AURORA	KS	1.97E	1.98
BRNK1	BARNARD, SALT CR	KS	1.97	1.98
MNPK1	MINNEAPOLIS	KS	1.97	1.98
MPSK1	MINNEAPOLIS, SOLOMON	KS	1.97E	1.98
OSBK1	OSBORNE, SOLOMON R	KS	1.94	1.95
NLSK1	NILES, SOLOMON R	KS	1.91E	1.91
HLTK1	HOLTON	KS	1.90	1.90
LLLK1	LILLIS	KS	1.82	1.83
WMLK1	WESTMORELAND	KS	1.82E	1.83
COVK1	COVERT	KS	1.80	1.80
HRTK1	HORTON	KS	1.79E	1.79
ADAK1	ADA 3ESE, SALT CR	KS	1.75E	1.75
NAPN1	NAPONEE, TURKEY CR	NE	1.71E	1.72
STKK1	STOCKTON 1E	KS	1.71E	1.72
MRYK1	MARYSVILLE, BIG BLUE	KS	1.65	1.65
MRVK1	MARYSVILLE	KS	1.63E	1.63
ESBK1	ESBON 7N	KS	1.62E	1.63
FKNN1	FRANKLIN, CENTER CR	NE	1.62E	1.63
BLNK1	BLAINE	KS	1.61E	1.62
LURK1	LURAY	KS	1.61E	1.62
PTRK1	POTTER, STRANGER CR	KS	1.57	1.58
RVRN1	RIVERTON, REPUBLICAN	NE	1.57E	1.58
RVTN1	RIVERTON, THOMPSON C	NE	1.57	1.58
HUSK1	HUSCHER	KS	1.55E	1.55
GDEK1	GLADE, N FK SOLOMON	KS	1.53	1.53
BURK1	BURR OAK, WHITE ROCK	KS	1.50E	1.50
GUIN1	GUIDE ROCK, REPUB R	NE	1.50E	1.50
HOLK1	HOLTON, SOLDIER CR	KS	1.49E	1.50
BROK1	BURR OAK 1N	KS	1.48	1.49
ONGK1	ONAGA 12 SSW	KS	1.47E	1.48
COZN1	COZAD 2S, PLATTE R	NE	1.46	1.47
TQE	TEKAMAH	NE	1.44	1.45
NCMK1	NEW CAMBRIA 1SE	KS	1.43E	1.43
PHIK1	PHILLIPSBURG #2	KS	1.43E	1.43

1NWSRFS FORECAST SYSTEM - PROGRAM PPDUTIL (VERSION: ob8.1 - 03/20/07) USER=MBRFC
DATE=Jun 2, 2011 - 14:02:15
0

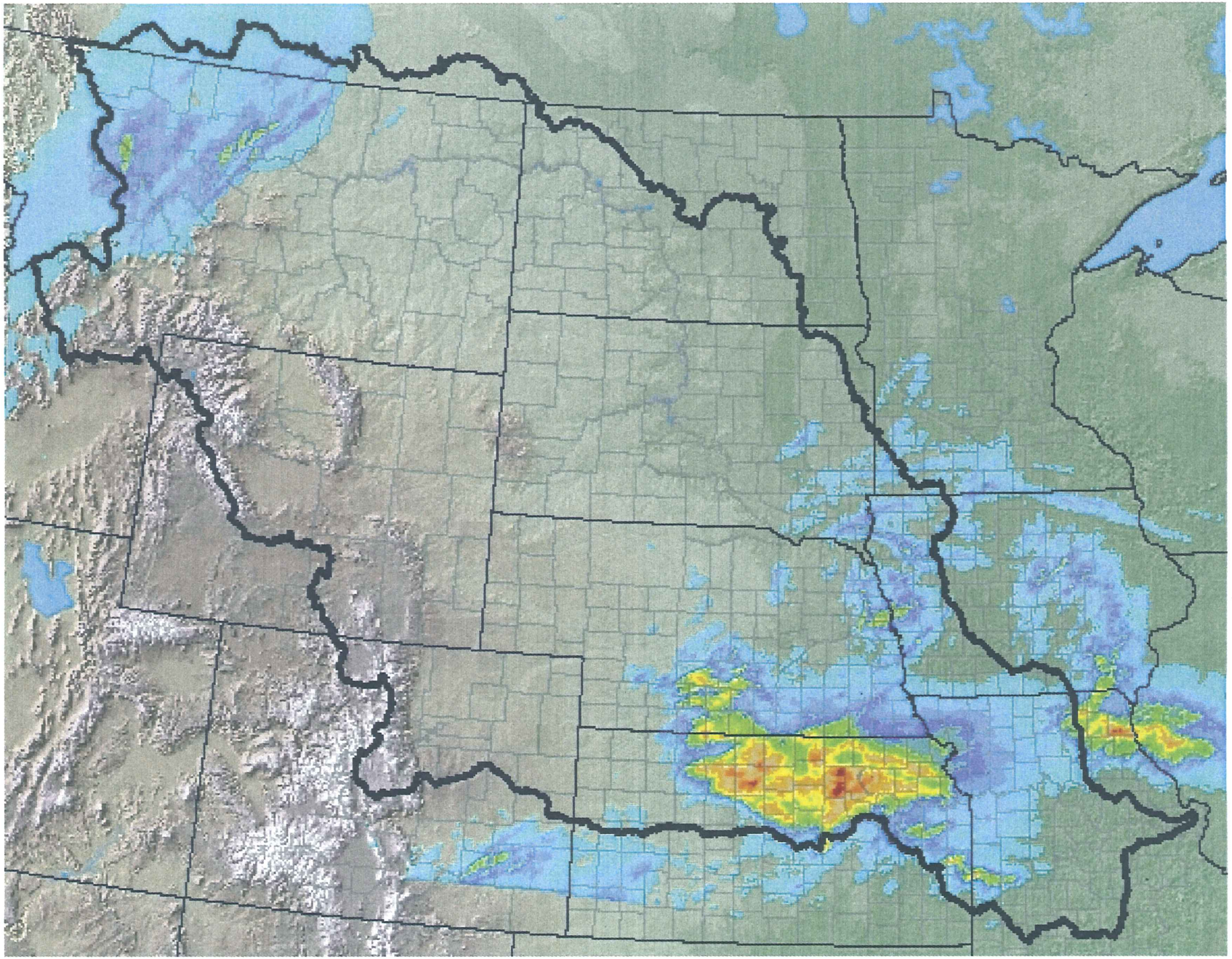
0STATION ID	DESCRIPTION	STATE	06/02	PERIOD SUM
PHLK1	PHILLIPSBURG 1SSE	KS	1.43E	1.43
CNK	CONCORDIA	KS	1.42	1.42
GDRN1	GUIDE ROCK	NE	1.42E	1.42
SMOK1	SMOLAN 1NE	KS	1.42	1.42
KRKM7	KIRKSVILLE (KIRX)	MO	1.39	1.39
LOVK1	LOVEWELL DAM	KS	1.39E	1.39
TSCK1	TESCOTT, SALINE R	KS	1.39E	1.39
BRMK1	BREMEN 1E	KS	1.38	1.38
TESK1	TESCOTT	KS	1.38	1.38
CONK1	CONCORDIA 1W	KS	1.36E	1.37
UIN	QUINCY	IL	1.36	1.37
SCDK1	SCANDIA	KS	1.36E	1.37
FKFK1	FRANKFORT,BLACK VERM	KS	1.35E	1.36
SLN	SALINA	KS	1.32	1.33

BARK1	BARNES	KS	1.30E	1.30
LSXI4	LITTLE SIOUX 2NW	IA	1.30	1.30
SNDK1	SCANDIA, REPUBLICAN	KS	1.30E	1.30
EMMK1	EMMETT	KS	1.28E	1.28
FRKK1	FRANKFORT	KS	1.26E	1.26
HDYN1	HARDY, REPUBLICAN R	NE	1.26E	1.26
HARN1	HARDY	NE	1.25E	1.25
SRRN1	SUPERIOR 4E	NE	1.25	1.25
CNKK1	CONCORDIA, REPUB R	KS	1.22	1.23
ORNN1	ORLEANS 2W, REPUB R	NE	1.22	1.23
JMSK1	JAMESTOWN, BUFFALO C	KS	1.20E	1.21
NTAK1	NATOMA	KS	1.20E	1.21
NVZM7	NOVINGER, CHARITON R	MO	1.20E	1.21
STMN1	STAMFORD, SAPPA CR	NE	1.20E	1.21
WMAK1	WASHINGTON	KS	1.20	1.21
RHHM7	RICH HILL (DNR)	MO	1.19	1.20
SKTK1	STOCKTON 9N, BOW CR	KS	1.19E	1.20
MTRK1	MENTOR, SMOKY HILL R	KS	1.17E	1.17
NOVM7	NOVINGER	MO	1.17E	1.17
HANK1	HANOVER 4S	KS	1.16E	1.16
PLKK1	POMONA DAM GDDS	KS	1.16	1.16
QUEK1	QUENEMO 5NW	KS	1.16E	1.16
IRK	KIRKSVILLE	MO	1.15	1.15
SLNK1	SALINA, MULBERRY CR	KS	1.13	1.13
CTLK1	COURTLAND	KS	1.12	1.13
OSKK1	OSKALOOSA 4NE	KS	1.10E	1.11
BEVK1	BROOKVILLE	KS	1.09E	1.10
BKVK1	BROOKVILLE	KS	1.09E	1.10
ELWN1	ELWOOD 8S	NE	1.09	1.10
FABN1	FAIRBURY 5S	NE	1.09E	1.10
RIHM7	RICH HILL	MO	1.08E	1.09
WETK1	WETMORE	KS	1.08E	1.09
CENK1	CENTRALIA	KS	1.07E	1.08
CRLK1	CIRCLEVILLE 7SW	KS	1.06E	1.06
HOYK1	HOYT	KS	1.06E	1.06
UNGN1	UEHLING	NE	1.06	1.06
K87	HIAWATHA 5SSE	KS	1.05E	1.05
HUBN1	HUBBELL	NE	1.05	1.05
UHLN1	UEHLING	NE	1.04E	1.04

Kevin Grode, P.E.
Reservoir Regulation Team Lead
Missouri River Basin Water Management,
Northwestern Division, USACE
402.996.3870
402.996.3898 (fax)

Classification: UNCLASSIFIED
Caveats: NONE

Classification: UNCLASSIFIED
Caveats: NONE



MBRFC 24-Hour Gage Biased Estimated Rainfall (inches)

Ending: 6/2/2011 at 7:00 AM CDT

Created 6/2/2011 at 8:32 AM CDT

[redacted], Linda F NWO

From: Farhat, Jody S NWD02
Sent: Thursday, June 02, 2011 11:32 AM
To: [redacted]
Subject: Farhat talking pts 1 June (UNCLASSIFIED)
Attachments: 2011 Missouri River Flood Talking Points 1 Jun 2011.docx

Classification: UNCLASSIFIED
Caveats: NONE

Jody Farhat, P.E.
Chief, Missouri River Basin Water Management

[redacted]

Classification: UNCLASSIFIED
Caveats: NONE

2011 Missouri River Flood Talking Points
Missouri River Water Management
1 June 2011

Background

- As a result of a series of extraordinary rain events over the past several weeks in eastern Montana, northern Wyoming and the western Dakotas virtually all of the reservoir storage we intended to utilize to manage the snowmelt runoff has been filled up
- Snowpack is well above historic levels and still climbing in some regions and has only just begun to melt in others

Releases

- Each day we update the reservoir forecast with new rain and snow runoff information
- When changes to the inflow forecasts occur, which they often do, it is necessary for us to make adjustments to the come-up schedules at the mainstem reservoirs to balance the impacts of changing conditions.
    - Also important to note is that changing conditions at any one of the mainstem dams will have a ripple effect on the other 5
- We will be updating our reservoir forecast daily and will be posting it on the web when it is complete, generally in the late afternoon. We encourage you to monitor the web site and participate in these daily calls to ensure you have the latest and best information available
- Planned and forecasted releases at the 6 dams based on the forecast we posted on the web this afternoon are as follows:
    - Fort Peck – today 10,000 cfs, increasing to 15,000 cfs tomorrow, 50,000 cfs peak no later than mid-June
    - Garrison – yesterday 85,000 cfs, increasing in 2 steps today to 100,000 cfs, and 110,000 kcfs tomorrow in 2 steps with an eventual peak of 150,000 cfs no later than mid-June
    - Oahe – today 85,000 cfs, holding 85,000 cfs tomorrow, begin ramping up on Saturday with an eventual peak release of 150,000 cfs next week
    - Big Bend– today 85,000 cfs, holding 85,000 cfs tomorrow, begin ramping up on Saturday with an eventual peak release of 150,000 cfs next week
    - Fort Randall – 81,000 cfs today, going to 83,000 cfs tomorrow, with an eventual peak of 150,000 cfs no later than mid-June
    - Gavins Point – 81,000 cfs today, going to 85,000 cfs tomorrow, with an eventual peak of 150,000 cfs no later than mid-June
- It is important to remember that actual releases are based on conditions on the ground, which are subject to change.
- Bottom line is, the sooner we can reach these maximum release rates, the less risk there is that we'll have to go higher
- Once we have evacuated some storage in the reservoir system, we will have more flexibility to respond to changing conditions

Summary

- Forecast is based on best available information at this time

- Peak releases of 150 kcfs are certain for lower 5 dams, and could reach that level sooner than current projections if conditions in the upper basin deteriorate and could potentially go higher

Previous Record Releases

- Fort Peck 35 kcfs in 1975
- Garrison 65 kcfs in 1975
- Oahe 59 kcfs in 1997
- Big Bend 74 kcfs in 1997
- Fort Randall 67 kcfs in 1997
- Gavins Point 70,000 cfs in 1997

[redacted]

From: Farhat, Jody S NWD02
Sent: Thursday, June 02, 2011 12:14 PM
To: [redacted]
Subject: slides (UNCLASSIFIED)
Attachments: MRBWM 26 May 2011.pptx

Classification: UNCLASSIFIED
Caveats: NONE

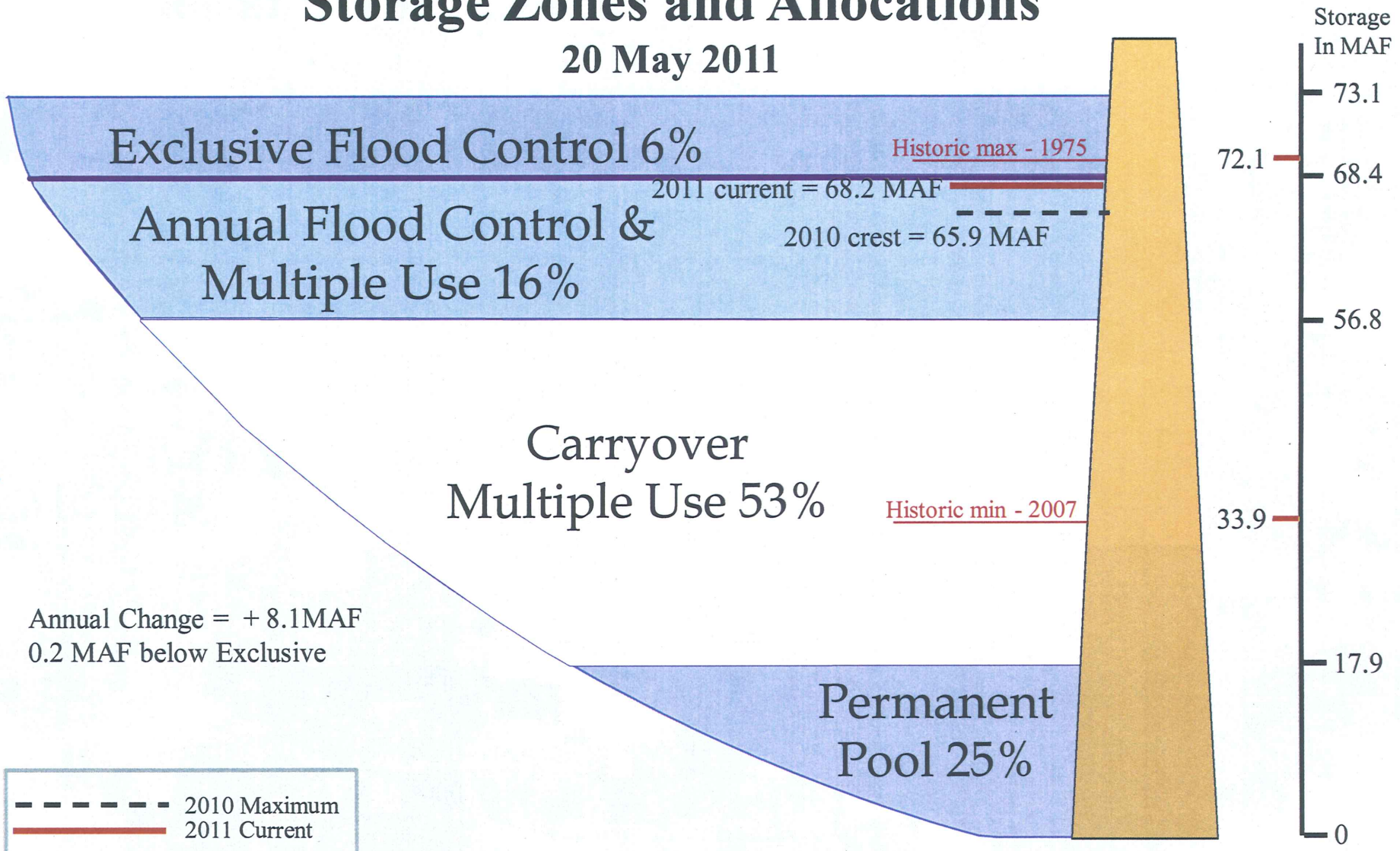
[redacted] see this presentation for slide with zones for 4 reservoirs

Jody Farhat, P.E.
Chief, Missouri River Basin Water Management

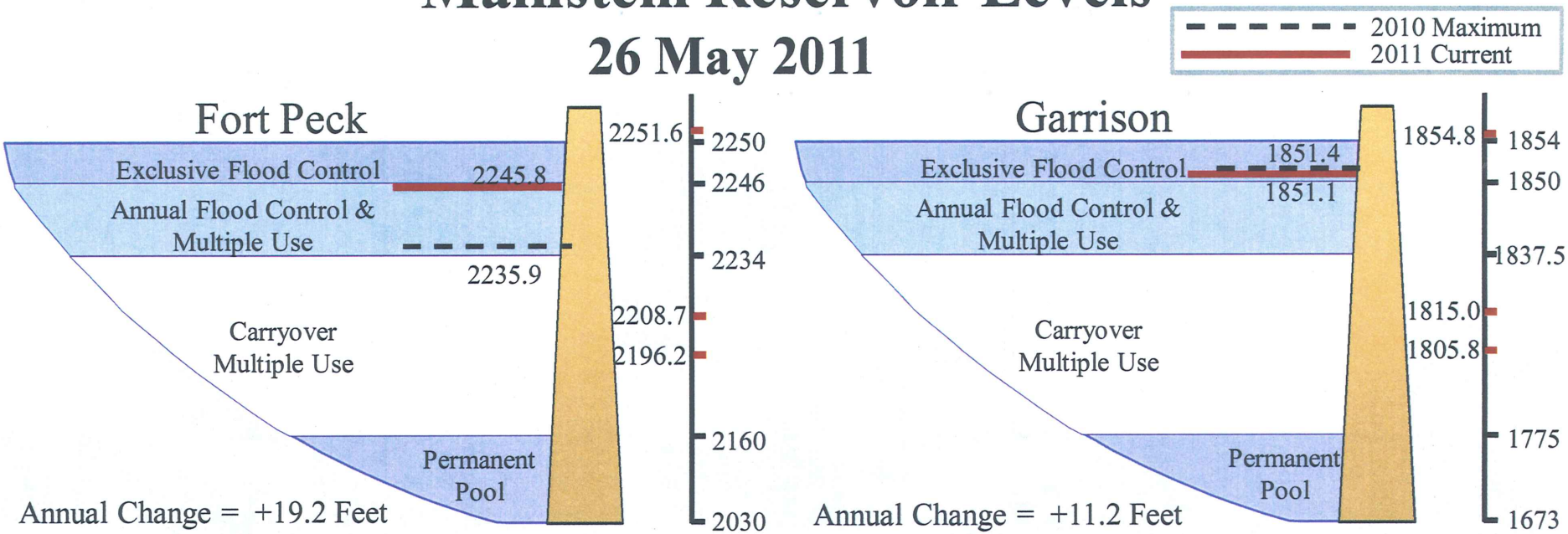
[redacted]

Classification: UNCLASSIFIED
Caveats: NONE

Missouri River Mainstem System
Storage Zones and Allocations
20 May 2011



Mainstem Reservoir Levels
26 May 2011



Annual Change = +19.2 Feet
0.2 ft below Exclusive

Annual Change = +11.2 Feet
1.1 ft above Exclusive

Annual Change = 1.1 Feet
0.9 ft above Exclusive

Annual Change = - 3.4 Feet
8.2 ft below Exclusive

2011 Missouri River Flood Talking Point
26 May 2011 - 8 a.m.

Background

- Huge rain event over the past two weeks in eastern Montana, northern Wyoming and the western Dakotas
    - As much rain in the past month as this region gets in a normal year
    - 300 - 600 percent of normal
- Runoff from the rain has use up much of the storage we intended to utilize to manage the snowmelt runoff
- Snowpack peaked late, at 135 to 140 percent of normal, and has only just begun to runoff into the system.
- Release forecasts issued over the past several days were looking at short term, immediate changes we needed to handle the rainfall event
- Now we've had a chance to look at the longer range forecast to determine what we need to do to manage the snowmelt runoff that is poised to come into the reservoir system

Snowmelt

- With the reservoirs this full, timing of the snowmelt runoff and reservoir releases is critical
    - Similar snowpack to other high water years – the record runoff year of 1997 and 1975 when we set record pool levels at Fort Peck and Garrison
    - Used the timing and shape of those snowmelts applied to the runoff expected in 2011 to estimate daily inflows and releases for the reservoirs
    - Applied to current reservoir conditions

Releases

- Increased releases well above those previously announced are necessary at all six mainstem dams
- Increased releases are needed to manage the reservoir levels to avoid reaching the top of the spillway gates
    - If reservoirs reach the top of the spillway gates, inflow equal outflow
- This plan is based on what we know today looking out the next 60-day snowmelt window
    - As always, subject to change based on changing weather conditions
- Anticipating releases at all reservoirs except Fort Peck to eventually reach the 110 kcfs range
    - 120 kcfs possible system wide
    - Would increase stages about 0.7 feet in most areas

Reservoir Specific Releases

- Fort Peck
    - Releases reaching 40 kcfs in early June, peaking out at 50 kcfs by early July
    - Peak reservoir level within 1 foot of the top of spillway gates

- Garrison
  - Increase to 85 kcfs on schedule provided previously
  - Hold 85,000 cfs through approximately 9 June
  - Step up to 105 kcfs by mid to late June
  - Peak reservoir level at top of spillway gates
- Oahe
  - Increase to 85 kcfs on schedule provided previously
  - Hold 85,000 cfs through 3 June
  - Step up to 100 kcfs by 6 June
  - Eventually reaching 110 kcfs by late June – early July
  - Peak reservoir level within 1 foot of the top of the spillway gates
- Big Bend
  - Increase release to 85 kcfs on schedule provided previously
  - Step to 90,000 next week
  - Eventually reaching 110 kcfs by late June – early July
  - Normal operating level for reservoir – no flood control storage
- Fort Randall
  - Increase to 82.5 kcfs on schedule provided previously
  - Releases gradually increased to 108 kcfs by late June – early July
  - Peak reservoir level 1364.5
- Gavins Point
  - Increase to 85 kcfs on schedule provided previously
  - Releases gradually increased to 110 kcfs by late June – early July
  - Normal operating level for reservoir – no flood control storage

Summary

- Forecast is based on best available information at this time and considers snowmelt period which previous estimates did not
- Releases of 110 kcfs are certain for lower 5 dams
- 120 kcfs across the system within the realm of possibility and is what we will be building to at any projects we are involved in
- These peak releases are absolutely necessary to manage the reservoir levels to avoid reaching the top of the spillway gates even if climatic conditions were to change suddenly for the better
- Release schedule firm for initial increases to 85,000 cfs; beyond that there will be shifts in timing based on conditions on the ground.
- Omaha and Kansas City Districts are working on flood inundation mapping which will be shared with local officials

2011 Missouri River Flood Talking Points
Missouri River Water Management
1 June 2011

Background

- As a result of a series of extraordinary rain events over the past several weeks in eastern Montana, northern Wyoming and the western Dakotas virtually all of the reservoir storage we intended to utilize to manage the snowmelt runoff has been filled up
- Snowpack is well above historic levels and still climbing in some regions and has only just begun to melt in others

Releases

- Each day we update the reservoir forecast with new rain and snow runoff information
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    - Also important to note is that changing conditions at any one of the mainstem dams will have a ripple effect on the other 5
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- It is important to remember that actual releases are based on conditions on the ground, which are subject to change.
- Bottom line is, the sooner we can reach these maximum release rates, the less risk there is that we'll have to go higher
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Summary

- Forecast is based on best available information at this time

- Peak releases of 150 kcfs are certain for lower 5 dams, and could reach that level sooner than current projections if conditions in the upper basin deteriorate and could potentially go higher

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2011 Missouri River Flood Talking Points
Missouri River Water Management
31 May 2011

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- As a result of a series of extraordinary rain events over the past several weeks in eastern Montana, northern Wyoming and the western Dakotas virtually all of the reservoir storage we intended to utilize to manage the snowmelt runoff has been filled up
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- Planned and forecasted releases at the 6 dams based on the forecast we posted on the web this afternoon are as follows:
    - Fort Peck – today 10,000 cfs, holding 10,000 cfs tomorrow, 50,000 cfs peak no later than mid-June
    - Garrison – today 85,000 cfs, increasing in 2 steps (92,500 8 a.m.) tomorrow to 100,000 cfs 8 p.m., with an eventual peak of 150,000 cfs no later than mid-June
        - Tomorrow we will utilize the spillway for the first time in project history
    - Oahe – today 85,000 cfs, holding 85,000 cfs tomorrow, with an eventual peak release of 150,000 cfs next week
        - Our goal is to avoid the use of the Oahe spillway
        - We would like to step up these releases as soon as the temporary risk mitigation measures are in place in order to get water moving out of the mainstem system
    - Big Bend– today 85,000 cfs, holding 85,000 cfs tomorrow, with an eventual peak release of 150,000 cfs next week
    - Fort Randall – 77,000 cfs today, going to 81,000 cfs tomorrow, with an eventual peak of 150,000 cfs no later than mid-June
    - Gavins Point – 78,000 cfs today, going to 81,000 cfs tomorrow, with an eventual peak of 150,000 cfs no later than mid-June
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2011 Missouri River Flood Talking Point
30 May 2011

Background

- As a result of a series of extraordinary rain events over the past several weeks in eastern Montana, northern Wyoming and the western Dakotas virtually all of the reservoir storage we intended to utilize to manage the snowmelt runoff has been filled up
- Snowpack is well above historic levels and still climbing in some regions and has only just begun to melt in others

Releases

- Each day we update the reservoir forecast with new rain and snow runoff information
- When changes to the inflow forecasts occur, which they often do, it is necessary for us to make adjustments to the come-up schedules at the mainstem reservoirs to balance the impacts of changing conditions.
- For example, yesterday the runoff forecast into Oahe rose above previous estimates due to rain in the basin. As a result, we were driven to accelerate the come-up schedule at that reservoir, reaching 150 kcfs about 1 week earlier than previous forecasts had indicated
    - A key driver in our regulation at the present time is to avoid utilizing the spillway at Oahe if at all possible.
    - As a result of this change at Oahe, the release schedules at the other 5 days were adjusted as well.
- We will be updating our reservoir forecast daily and will be posting it on the web when it is complete, generally in the late afternoon. We encourage you to monitor the web site and participate in these daily calls to ensure you have the latest and best information available
- It is important to remember that actual releases are based on conditions on the ground, which are subject to change.
- Bottom line is, the sooner we can reach these maximum release rates, the less risk there is that we'll have to go higher
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- Fort Randall 67 kcfs in 1997
- Gavins Point 70,000 cfs in 1997

[redacted]

From: Farhat, Jody S NWD02
Sent: Thursday, June 02, 2011 2:19 PM
To: [redacted]
Subject: plains snowpack (UNCLASSIFIED)
Attachments: 2011 plains snowpack.pptx

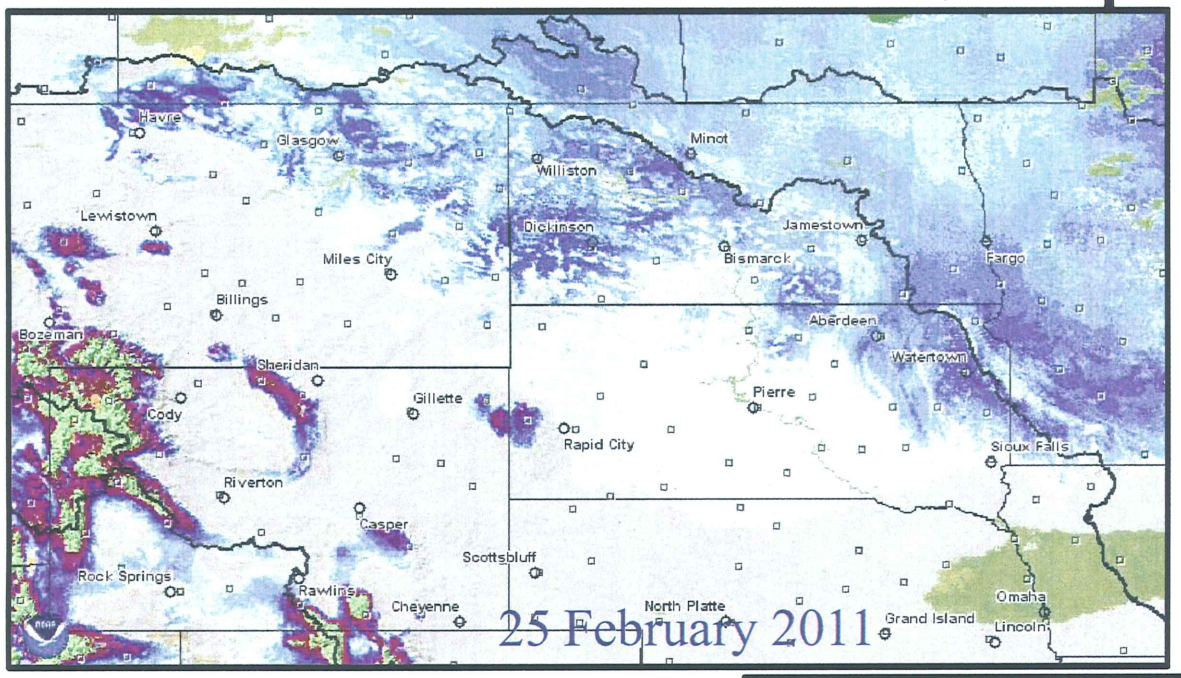
Classification: UNCLASSIFIED
Caveats: NONE

Jody Farhat, P.E.
Chief, Missouri River Basin Water Management

[redacted]

Classification: UNCLASSIFIED
Caveats: NONE

Plains Snowpack



25 February 2011

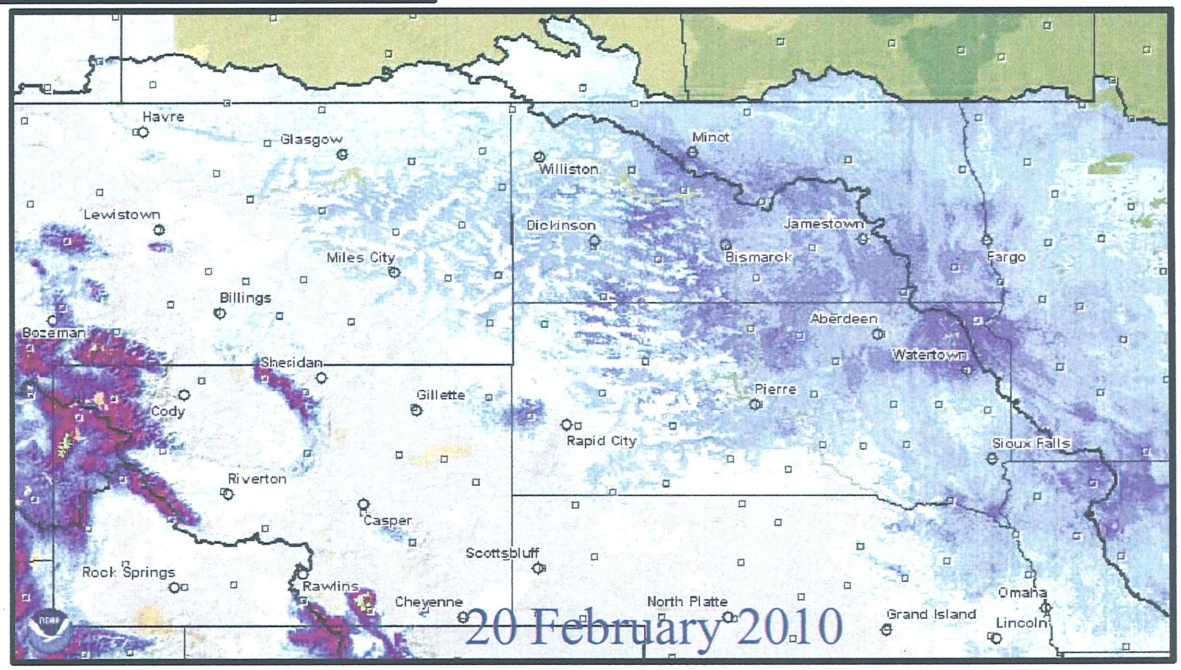
Inches of water equivalent

	>	18	
16	to	18	
14	to	16	
12	to	14	
10	to	12	
8	to	10	
6	to	8	
5	to	6	
4	to	5	
3	to	4	
2	to	3	
1	to	2	
0	to	1	

Not Estimated

Elevation in feet (Not estimated)

	>	13124	
8203	to	13124	
3281	to	8203	
3	to	3281	
	<	3	



20 February 2010

[redacted]

From: Farhat, Jody S NWD02
Sent: Thursday, June 02, 2011 7:00 PM
To: [redacted]
Subject: FW: May 2011 Inflow - Talking Points (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

-----Original Message-----
From: Farhat, Jody S NWD02
Sent: Thursday, June 02, 2011 11:31 AM
To: [redacted]
Subject: FW: May 2011 Inflow - Talking Points (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

-----Original Message-----
From: [redacted]
Sent: Wednesday, June 01, 2011 10:22 AM
To: Farhat, Jody S NWD02; [redacted]
Cc: [redacted]
Subject: May 2011 Inflow - Talking Points (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

May 2011 inflow above Sioux City was 10.5 MAF

Previous record May inflow was 7.2 MAF (1995)

May 2011 inflow into Fort Peck was 2.9 MAF; previous May FTPK record was 2.6 MAF (1975)

May 2011 inflow into Garrison was 4.4 MAF; previous May GARR record was 2.8 MAF (1978)

The May 2011 monthly inflow of 10.5 MAF is the 2nd highest monthly total from 1898-2011, exceeded only in April 1952 (13.2 MAF)

Comparing FTPK+GARR May inflows:
1952* = 1.8 + 4.9 = 6.7
1975 = 2.7 + 2.7 = 5.4
1978 = 1.8 = 2.8 = 4.6
1997 = 1.5 + 1.6 = 3.1
2011 = 2.9 + 4.4 = 7.3

*1952 record monthly flows occurred in (April) = 1.8 + 4.9 = 6.7

[redacted]

Reservoir Regulation Team Lead
Missouri River Basin Water Management,
Northwestern Division, USACE
[redacted]

Classification: UNCLASSIFIED
Caveats: NONE

Classification: UNCLASSIFIED
Caveats: NONE

Classification: UNCLASSIFIED
Caveats: NONE

[redacted] NWO

From: Farhat, Jody S NWD02
Sent: Thursday, June 02, 2011 7:00 PM
To: [redacted]
Subject: FW: May 2011 Inflow - Talking Points (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

-----Original Message-----
From: Farhat, Jody S NWD02
Sent: Thursday, June 02, 2011 11:31 AM
To: [redacted]
Subject: FW: May 2011 Inflow - Talking Points (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

-----Original Message-----
From: [redacted]
Sent: Wednesday, June 01, 2011 10:22 AM
To: Farhat, Jody S NWD02; [redacted]
Cc: [redacted]
Subject: May 2011 Inflow - Talking Points (UNCLASSIFIED)

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*1952 record monthly flows occurred in (April) = 1.8 + 4.9 = 6.7

[redacted]

Reservoir Regulation Team Lead
Missouri River Basin Water Management,
Northwestern Division, USACE
[redacted]

Classification: UNCLASSIFIED
Caveats: NONE

Classification: UNCLASSIFIED
Caveats: NONE

Classification: UNCLASSIFIED
Caveats: NONE

[redacted]

From: Farhat, Jody S NWD02
Sent: Thursday, June 02, 2011 10:29 PM
To: Love, Raymond E MAJ NWD; [redacted]
Cc: [redacted]
Subject: RE: WM Update (UNCLASSIFIED)
Attachments: NWD Missouri Basin Update - 060211.pptx

Classification: UNCLASSIFIED
Caveats: NONE

[redacted] Sorry, we over looked this today. See attached. Too many moving parts.

Jody

-----Original Message-----
From: Love, Raymond E MAJ NWD
Sent: Thursday, June 02, 2011 10:13 PM
To: Farhat, Jody S NWD02
Cc [redacted]
Subject: RE: WM Update (UNCLASSIFIED)

Jody,

Can you email this to me for my report today? I'm working on it now.

MAJ Raymond Love
Contingency Operations Officer
Readiness and Contingency Operations
Northwestern Division
US Army Corps of Engineers
[redacted]

FOR OFFICIAL USE ONLY - This email and any attachments may contain information that is protected from disclosure by the Privacy Act of 1974 and should be viewed only by those with an official "need to know." If you are not the intended recipient, be aware that any disclosure, copying, distribution or use of the content of this information is prohibited. If you have received this communication in error, please notify me immediately by email, delete the original message, and destroy any hard copies you may have created. Any misuse or unauthorized disclosure may result in both civil and criminal penalties.

-----Original Message-----
From: Tipton, Robert A Col NWD
Sent: Wednesday, June 01, 2011 5:31 PM
To: Farhat, Jody S NWD02; [redacted]
Cc: [redacted]
Subject: RE: WM Update (UNCLASSIFIED)

Thanks Jody....

My thoughts are that we will take it at the best time of the day that makes sense for you to update it (and you can't say there is no sensible time :)). We really need this probably before 1000 PST or 1300 CST daily....but again, if your battle rhythm makes is better to do it a little later, we can live with that as well as long as we are consistent with the as of time.

[redacted] what any thought on this?

Robert A. Tipton, P.E.
COL, EN
Deputy Commander
Northwestern Division
U.S. Army Corps of Engineers

[redacted]

-----Original Message-----
From: Farhat, Jody S NWD02
Sent: Wednesday, June 01, 2011 5:04 PM
To: Tipton, Robert A Col NWD; [redacted] Love, Raymond E MAJ NWD
Cc: [redacted]
Subject: RE: WM Update (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

Sir - I've asked [redacted] to update it for you daily. Please let him know what time you need it.

-----Original Message-----
From: Tipton, Robert A Col NWD
Sent: Wednesday, June 01, 2011 6:03 PM
To: [redacted]ove, Raymond E MAJ NWD; Farhat, Jody S NWD02
Subject: WM Update

Team,

The CG likes the stage report that was prepared for him to day and attached below. Ray, please work with Jody on how we can work this smart to get it updated on a daily basis and we will also use this to keep HQUSACE updated as well.

Jody - my thoughts are that you could just use this format on your website in lieu of the one you posted and we could just pull it from that site...I know this is a little more information than you were posting before, but this is what we need to feed the beast...seems to me that this may be the most efficient way of doing it.

[redacted] Please discuss with Jody the best way to do this. This report will be used by the CG, included in the nightly SITREP and by our congressional liaison folks. The attached report can be included in tonight's SITREP

RT

Robert A. Tipton, P.E.
COL, EN
Deputy Commander

[redacted]

Classification: UNCLASSIFIED
Caveats: NONE

Classification: UNCLASSIFIED
Caveats: NONE

Missouri River Basin Stages

2 June 2011

US Army Corps of Engineers
BUILDING STRONG®

	Station	Flood Stage	Current Stage	Likely Range of Highest* Flows/Stages		Projected Date **	Record Stage (Year)
A	Bismarck	16	16.1	150 kcfs		June 19	
				20.6			
B	Pierre	15	15.3	150 kcfs		June 7	
				18.7			
C	Yankton	20	19.8	150 kcfs		June 14	
				n/a	Na/		
D	Sioux City	30	28.2	170 kcfs	200 kcfs	June 15	44.28 (1952)
				35	37		
E	Decatur	35	33.5	175 kcfs	205 kcfs	June 15	43.5 (1943)
				40	42		
)F	Blair	26.5	27.9	175 kcfs	205 kcfs	June 15	33.5 (1952)
				30	32		
G	Omaha	29	29.1	175 kcfs	210 kcfs	June 16	40.2 (1952)
				34	36		
H	Nebraska City	18	22.9	200 kcfs	250 kcfs	June 16	27.19 (1993)
				27	28+		
I	Brownville	33	39.1	205 kcfs	270 kcfs	June 16	44.3 (1993)
				43	44+		
J	Rulo	17	22.9	210 kcfs	290 kcfs	June 17	26.63 (2010)
				25.5	27+		
K	St. Joseph	17	21.7	215 kcfs	320 kcfs	June 17	32.07 (1993)
				27	32		
L	Atchison	22	24.9	215 kcfs	320 kcfs	June 17	31.63 (1993)
				30	34		
M	Leavenworth	20	20.6	215 kcfs	320 kcfs	June 17	35.34 (1993)
				27	33		

Missouri River Basin Stages

2 June 2011

US Army Corps of Engineers
BUILDING STRONG®

	Station	Flood Stage	Current Stage	Likely Range of Highest* Flows/Stages		Projected Date **	Record Stage (Year)
N	Kansas City	32	25.0	220 kcfs 30	350 kcfs 39	June 18	48.87 (1993)
O	Sibley	22	23.7	220 kcfs 28	350 kcfs 33	June 18	40.6 (1952)
P	Napoleon	17	20.8	220 kcfs 25	350 kcfs 29	June 18	28.86 (2007)
Q	Waverly	20	23.3	230 kcfs 27	370 kcfs 31	June 18	31.15 (1993)
R	Miami	18	21.8	235 kcfs 26	370 kcfs 30	June 19	32.6 (1993)
S	Glasgow	25	25.0	250 kcfs 32	410 kcfs 37	June 19	39.5 (1993)
T	Boonville	21	22.2	260 kcfs 27	420 kcfs 33	June 19	37.1 (1993)
U	Jefferson City	23	21.5	260 kcfs 27	430 kcfs 35	June 19	38.3 (1993)
V	Chamois	17	n/a	290 kcfs 24	450 kcfs 29	June 19	33.3 (1993)
W	Gasconade	22	24.8	300 kcfs 30	470 kcfs 35	June 19	39.6 (1993)
X	Hermann	21	22.5	300 kcfs 27	470 kcfs 33	June 20	36.97 (1993)
Y	Washington	20	18.9	300 kcfs 23	470 kcfs 32	June 20	35.4 (1993)
Z	St. Charles	25	25.1	300 kcfs 28	470 kcfs 37	June 20	40.04 (1993)

[redacted] NWO

From: Ruch, Robert J COL NWO
Sent: Friday, June 03, 2011 11:49 PM
To: Farhat, Jody S NWD02
Subject: Fw: Issue on L-550

FYSA
V/R,
COL Bob Ruch
Message sent via my BlackBerry Wireless Device

----- Original Message -----
From: Ruch, Robert J COL NWO
To: Hofmann, Anthony J COL NWK
Sent: Fri Jun 03 21:35:05 2011
Subject: Issue on L-550

Tony,

Just SA. Sponsor found a bad situation on L-550. Looks like a farmer clearing a ditch cut into a critical section. Won't say a breach is imminent until we see it in the light but does not look good. Sheriff is on site with County EM. Will check hourly and they have guidance on when to evacuate if required. Very little but Ag behind it and only three feet of water on the levee now. Because it is Missouri I wanted to give you a heads up.

Got home early (2000hrs) and am just getting dinner - out early tomorrow to Sioux City for Codel visit and then meet the boss and head north for another. It is going to be a long few months.

Bob
V/R,
COL Bob Ruch
Message sent via my BlackBerry Wireless Device

[redacted] NWO

From: Farmer, Monique L NWO
Sent: Friday, June 03, 2011 8:20 PM
To: Farhat, Jody S NWD02; [redacted] NWO
Subject: Fw: News release (UNCLASSIFIED)
Attachments: FP PA-01.docx

Kim:

Please review for release tomorrow.

From: [redacted] NWP
To: Farmer, Monique L NWO
Cc: Blechinger, Erik T NWO
Sent: Fri Jun 03 16:56:25 2011
Subject: News release (UNCLASSIFIED)

Classification: UNCLASSIFIED

Caveats: NONE

I'm sending the first news release out and wanted to run it by you folks first.

I'll forward a copy to you and to the JIC for info purposes. Where do you want me to email it to you?

Erik, I tried to reach Monique by phone but she didn't answer - I didn't know if she was away for a while and needed to get this out. You're my insurance policy!

Thanks,

[redacted]

<<FP PA-01.docx>>

Thanks,
[redacted]

[redacted]
Public Affairs Specialist
U.S. Army Corps of Engineers, Portland District P.O. Box 2946 Portland, OR 97204-2946
Phone: [redacted]

Learn more about the Corps at these sites:

http://www.nwp.usace.army.mil <http://www.nwp.usace.army.mil>

http://www.facebook.com/PortlandCorps <http://www.facebook.com/PortlandCorps>

http://twitter.com/PortlandCorps <http://twitter.com/PortlandCorps>

http://www.youtube.com/PortlandCorps <http://www.youtube.com/PortlandCorps>

Classification: UNCLASSIFIED

Caveats: NONE

NEWS RELEASE

U.S. Army Corps of Engineers

BUILDING STRONG®

Release No: Fort Peck PA-01
For Immediate Release:
June 3, 2011

Contact:
Diana Fredlund, (406) 526-3411 Ext.4285
diana.j.fredlund@usace.army.mil

FORT PECK RELEASE SCHEDULE ACCELERATED

Fort Peck, Mont. – The U.S. Army Corps of Engineers has accelerated the projected release schedule through Fort Peck Dam. The increased releases will allow the Corps to reach a targeted 50,000 cubic feet per second (cfs) by June 7.

Scheduled releases

30,000 cfs will be released by June 4
40,000 cfs will be released by June 5
45,000 cfs will be released by June 6
50,000 cfs will be released by June 7

Releases are constantly monitored by Corps officials and are subject to change as needed.

Heavy rain and melting of historic levels of snowpack over the Northwestern Division area have raised water levels of rivers and reservoirs. The upper basin has received more than a year's worth of rain during the last month, nearly filling reservoirs.

The Corps asks the public to remain aware of the safety risks associated with flooding: high water on levees, flooded roads, rapidly flowing streams and environmental issues, such as well contamination.

For general questions regarding Missouri River flood response information, please call (402) 996-3877 or email the joint information center at MRJIC@usace.army.mil

Please follow us on Facebook (www.facebook.com/OmahaUSACE) and Twitter (www.twitter.com/OmahaUSACE) for the latest updates regarding our flood response operations.

You can also find flood inundation maps and local emergency management contact information on or social media sites and at http://www.nwo.usace.army.mil.

View daily and forecasted reservoir and river information on the Water Management section of the Northwestern Division homepage at http://nwd-mr.usace.army.mil/rcc.

- 30 -

[redacted] NWO

From: [redacted] NWO
Sent: Friday, June 03, 2011 7:50 PM
To: Farhat, Jody S NWD02
Subject: Re: Start of runoff (UNCLASSIFIED)

Doing well. Will send some pics.

----- Original Message -----
From: Farhat, Jody S NWD02
To: [redacted] NWO
Sent: Fri Jun 03 17:14:13 2011
Subject: RE: Start of runoff (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

March 1 is a significant date since that's when we target to have the reservoirs drawn down. This year we reached the desired storage level in late January and had already started getting inflow in Feb, so we were a little above the target level on 1 March. But still it's true to say we had the full flood control capacity of the system available at the start of the runoff season. Folks may ask why we didn't try to evacuate that Feb runoff prior to March first, but the problem is with the ice - it's very difficult to make significant release increases when the river is iced over.

Hope you holding up okay. You guys out in the field have the toughest jobs working one-on-one with the impacted citizens. Thanks for the great job you do every day.

Hang in there,
Jody

-----Original Message-----
From: [redacted] NWO
Sent: Friday, June 03, 2011 6:48 PM
To: Farhat, Jody S NWD02
Subject: Start of runoff

Isn't march 1 a significant date? Would it help to say that we were at or nearly at our target elev base of flood control for the season?

[redacted]

Classification: UNCLASSIFIED
Caveats: NONE

[redacted] NWO

From: Farmer, Monique L NWO
Sent: Friday, June 03, 2011 7:28 PM
To: Farhat, Jody S NWD02
Subject: Fw: 2nd question about conference call (clarification)

From: Molly Montag <MMontag@siouxcityjournal.com>
To: Farmer, Monique L NWO
Sent: Fri Jun 03 16:42:18 2011
Subject: 2nd question about conference call (clarification)

On the call, I asked when South Sioux City could be dry again (once it floods…if the river rises to the level the corps thinks it will).

Jody Farhat said late August to early Fall.

By "Fall" did she mean September or a different month?

Thanks,

Molly Montag

Sioux City Journal

(712) 293-4228

mollymontag@siouxcityjournal.com

[redacted] NWO

From: Farmer, Monique L NWO
Sent: Friday, June 03, 2011 7:28 PM
To: Fredlund, Diana J NWP; Farhat, Jody S NWD02
Cc: Blechinger, Erik T NWO
Subject: Re: News release (UNCLASSIFIED)

Jody has to approve. Diana do you use VOCUS.

From: [redacted] NWP
To: Farmer, Monique L NWO
Cc: Blechinger, Erik T NWO
Sent: Fri Jun 03 16:56:25 2011
Subject: News release (UNCLASSIFIED)

Classification: UNCLASSIFIED

Caveats: NONE

I'm sending the first news release out and wanted to run it by you folks first.

I'll forward a copy to you and to the JIC for info purposes. Where do you want me to email it to you?

Erik, I tried to reach Monique by phone but she didn't answer - I didn't know if she was away for a while and needed to get this out. You're my insurance policy!

Thanks,

[redacted]

<<FP PA-01.docx>>

Thanks,
Diana

[redacted]
Public Affairs Specialist
U.S. Army Corps of Engineers, Portland District P.O. Box 2946 Portland, OR 97204-2946
Phone: ([redacted]

Learn more about the Corps at these sites:

http://www.nwp.usace.army.mil <http://www.nwp.usace.army.mil>

http://www.facebook.com/PortlandCorps <http://www.facebook.com/PortlandCorps>

http://twitter.com/PortlandCorps <http://twitter.com/PortlandCorps>

http://www.youtube.com/PortlandCorps <http://www.youtube.com/PortlandCorps>

Classification: UNCLASSIFIED

Caveats: NONE

[redacted] NWO

From: [redacted] NWO
Sent: Friday, June 03, 2011 7:02 PM
To: Schuller, Ryan A NWO
Cc: Farhat, Jody S NWD02; Bertino, John J Jr NWO; [redacted] NWO; [redacted] NWO; Schenk, Kathryn M NWO; [redacted] NWO; [redacted] NWO
Subject: FW: Spillway Rating Table Update (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

[redacted]

Make sure you keep Reservoir Control and Engineering Division in the loop on these. They must have accurate release information.

[redacted]

-----Original Message-----
From: [redacted] NWD02
Sent: Friday, June 03, 2011 5:06 PM
To: [redacted] NWO
Subject: RE: Spillway Rating Table Update (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

We are now. Thanks.

[redacted].
Reservoir Regulation Team Lead
Missouri River Basin Water Management,
Northwestern Division, USACE
[redacted]
[redacted] (fax)

-----Original Message-----
From: [redacted] NWO
Sent: Friday, June 03, 2011 3:41 PM
To: Farhat, Jody S NWD02; [redacted] NWD02; [redacted] NWD02; [redacted] NWD02
Subject: FW: Spillway Rating Table Update (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

All:

Are you all aware of this change?

[redacted]

-----Original Message-----
From: [redacted] NWO
Sent: Friday, June 03, 2011 12:18 PM

To: DLL-CENWO-FP-Operator
Subject: Spillway Rating Table Update (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

The spillway rating table has been updated in ppcs as per the attached tables.

[redacted]
Electrical/PPCS Engineer
U.S. Army Corps of Engineers
Operations Division
Office: [redacted]
Cell: [redacted]

Classification: UNCLASSIFIED
Caveats: NONE

Classification: UNCLASSIFIED
Caveats: NONE

Classification: UNCLASSIFIED
Caveats: NONE

Classification: UNCLASSIFIED
Caveats: NONE

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Sent: Friday, June 03, 2011 6:48 PM
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Subject: Start of runoff

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[redacted]

[redacted] NWO

From: Farmer, Monique L NWO
Sent: Friday, June 03, 2011 6:21 PM
To: Williamson, Eileen L NWO; Farhat, Jody S NWD02
Cc: [redacted] NWO
Subject: RE: Flood_Fight_Talking_Points_03June11.docx (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

I agree with you. That first TP came directly from HQ. Please massage it as we are not required to use their TPs verbatim.

-----Original Message-----
From: Williamson, Eileen L NWO
Sent: Friday, June 03, 2011 6:19 PM
To: Farmer, Monique L NWO; Farhat, Jody S NWD02
Cc: [redacted] NWO
Subject: RE: Flood_Fight_Talking_Points_03June11.docx (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

Lots of questions about the sandbar habitats for piping plover and least tern.

Corps personnel remain vigilant to continue saving lives, and we are asking the public to remain aware of the safety risks associated with flooding: high water on levees, flooded roads, rapidly flowing streams and environmental issues such as well contamination.

On the above bullet, this sounds odd try committed instead of vigilant. Take out the we after , and - it changes tense

Here is another point I used today that came up online.

- When we use the spillway gates are our dams, water is released from the bottom of the gates versus overtopping the gates. This process enables us to better manage releases from the reservoir.

-----Original Message-----
From: Farmer, Monique L NWO
Sent: Friday, June 03, 2011 6:07 PM
To: Farhat, Jody S NWD02
Cc: [redacted] NWO; Williamson, Eileen L NWO
Subject: Flood_Fight_Talking_Points_03June11.docx (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

Jody:

These are the only ones I updated. If you are good with these, the TPs should be ready to go.

MF

***

- The Missouri River is operated to serve eight Congressionally-authorized purposes including water quality control, irrigation, navigation, hydropower, recreation, fish and wildlife, water supply and flood risk management.

- The Corps operates the Missouri River main stem reservoir system in alignment with the guidelines set forth in the Missouri River Master Manual.

- (In response to questions about spring pulse and pallid sturgeon) We are in flood fights all along the Missouri River basin and operating the river for flood risk reduction.

- High releases will continue through at least mid-August to evacuate stored flood water.

- Our goal is to evacuate reservoirs to provide time for damage assessment and repair prior to next year's runoff season.

Classification: UNCLASSIFIED
Caveats: NONE

Classification: UNCLASSIFIED
Caveats: NONE

Classification: UNCLASSIFIED
Caveats: NONE

[redacted] NWO

From: Williamson, Eileen L NWO
Sent: Friday, June 03, 2011 6:19 PM
To: Farmer, Monique L NWO; Farhat, Jody S NWD02
Cc: [redacted] NWO
Subject: RE: Flood_Fight_Talking_Points_03June11.docx (UNCLASSIFIED)

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Sent: Friday, June 03, 2011 6:07 PM
To: Farhat, Jody S NWD02
Cc: [redacted] NWO; Williamson, Eileen L NWO
Subject: Flood_Fight_Talking_Points_03June11.docx (UNCLASSIFIED)

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Classification: UNCLASSIFIED
Caveats: NONE

Classification: UNCLASSIFIED
Caveats: NONE

[redacted] NWO

From: Farmer, Monique L NWO
Sent: Friday, June 03, 2011 6:12 PM
To: Williamson, Eileen L NWO; Farhat, Jody S NWD02
Subject: RE: Another definition needed (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

Pulled from one of our previous news releases. Might help if we also add how much additional storage it provides.

V r,

MF

***

Surcharge storage is storage in excess of the exclusive flood control pool. The exclusive flood control pool is the area of the reservoir designed exclusively for the storage of floodwaters.

-----Original Message-----
From: Williamson, Eileen L NWO
Sent: Friday, June 03, 2011 6:04 PM
To: Farmer, Monique L NWO; Farhat, Jody S NWD02
Subject: Another definition needed (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

A term we are using a lot and people are asking what it means.

Surcharge Storage -

****

Eileen L. Williamson

Public Affairs Specialist

U.S. Army Corps of Engineers

Office: 402-995-2417

Mobile: 402-779-1448

eileen.l.williamson@usace.army.mil

Internet: nwo.usace.army.mil <https://www.nwo.usace.army.mil/>

Facebook: facebook.com/OmahaUSACE <http://www.facebook.com/OmahaUSACE>

Twitter: twitter.com/OmahaUSACE <http://www.twitter.com/OmahaUSACE>

****

Classification: UNCLASSIFIED
Caveats: NONE

Classification: UNCLASSIFIED
Caveats: NONE

[redacted] NWO

From: Farmer, Monique L NWO
Sent: Friday, June 03, 2011 6:07 PM
To: Farhat, Jody S NWD02
Cc: [redacted] NWO; Williamson, Eileen L NWO
Subject: Flood_Fight_Talking_Points_03June11.docx (UNCLASSIFIED)
Attachments: Flood_Fight_Talking_Points_03June11.docx

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Classification: UNCLASSIFIED
Caveats: NONE

Key Messages and Talking Points

ISSUE: Repeated rounds of heavy rain, coupled with record plains snowpack have pushed the Missouri River Reservoirs to very high levels that require aggressive and historic releases out of the main stem reservoirs. Huge rain events during the past month in eastern Montana, northern Wyoming and the Western Dakotas have brought as much rain into the area during the past month as what the regional normally sees in one year (300-600 percent of normal), and the rain continues to accumulate.

BACKGROUND: The Omaha District provides timely and effective technical advice and direct assistance before and during flood events with a goal of reducing flooding risks.

KEY/COMMAND MESSAGES

1. PUBLIC SAFETY

- Protecting lives is our number one priority, which is what this flood fight is all about – people's lives. Without the proper operation of the Missouri River main stem system, more lives and property will be at risk. We recognize that managing and communicating flood risk is a shared responsibility among federal, state, local, Tribal and private partners so people can make well informed public decisions about their safety.
- Our emergency response measures are designed to reduce flooding risks.
- We remind the public to remain vigilant of the safety risks associated with flooding events: high water on levees, flooded roads, high flowing streams and environmental issues such as well contamination.
- As the flood fight continues, residents who live and work near flood-impacted areas should remain vigilant and must be prepared to follow directions from their local emergency management officials.

2. TIMELY RESPONSE & PREPAREDNESS

- We take our flood reduction responsibilities very seriously and are working to do everything within our ability to reduce the risks from these flood events and provide assistance to the communities impacted by them.
- The Corps has a well-trained team of emergency response personnel, equipment and materials available and ready for mobilization if needed.
- When requested, the Corps provides technical assistance such as ice jam monitoring and scheduling water releases to accommodate snow melt and rain runoff.
- The Corps often provides advanced measures such as sandbags, rapid deployment floodwalls, Hesco bastions and temporary levees, to help reduce flooding risk.

3. ASSISTANCE TO COMMUNITIES AND TRIBAL GOVERNMENTS

- Under the authority of Public Law 84-99 and the Flood Control and Coastal Emergencies appropriations, Corps emergency management personnel collaborate with local, county, state, federal and tribal officials to ensure coordinated efforts in flood risk reduction and emergency response activities.

- We are doing everything we can to protect people and their property, which means making difficult choices and decisions.
- In coordination with Tribal governments and States, the Corps deploys flood fighting materials and supplies (sandbags, pumps, and expedient flood fight products), pre-positions flood flight supplies and equipment, and deploys flood engineers to provide technical assistance.
- In 2010, the operations of Corps Flood Damage Reduction projects prevented $23.1 billion in flood-related damages. A 10-year average of annual damages prevented is $25.2 billion.
- When disasters occur, it is not just a local Corps district or office that responds. Personnel and other resources are mobilized across the country to carry out our response missions.
- In any disaster, our top priorities are:
    - Support immediate emergency response priorities;
    - Sustain lives with critical commodities, temporary emergency power and other needs; and,
    - Initiate recovery efforts by assessing and restoring critical infrastructure.

4. EFFECTIVE COMMUNICATION

- We are using all available communication tools to keep the public informed of our emergency response operations, including:

    - Internet http://nwo.usace.army.mil/ - click the flooding link
    - OmahaUSACE on Facebook, Twitter and YouTube
    - Hotline (402) 996-3877 or email us at MRJIC@usace.army.mil
    - We are in the process of establishing a toll-free number

Missouri River Basin

- People living along the river are encouraged to make evacuation plans to protect their possessions and property. Maps for potential flood areas will be available at www.nwo.usace.army.mil and from local emergency management offices.

- In the last month, the upper basin has received more than a year's worth of rain. The heavy precipitation has nearly filled the reservoirs, doing away with most of the flexibility we had built into our operations for this year.

- Corps personnel remain vigilant to continue saving lives, and we are asking the public to remain aware of the safety risks associated with flooding: high water on levees, flooded roads, rapidly flowing streams and environmental issues such as well contamination.

- Releases from the Missouri River dams last fall and throughout the winter of 2010 were above normal to complete the evacuation of the 2010 flood waters. The full flood control capacity of the main stem reservoir system was available at the start of the 2011 runoff season.

- It is important to remember that each flooding event is unique. Varying factors such as rainfall location along the rivers and tributaries, and snowpack melt off patterns shape the characteristics of each flood.

- Safety is a shared responsibility. The Corps coordinates with local officials and communicates with the public on the condition of Corps owned dams. We encourage you to become educated and be aware of local conditions. Planning and preparedness may include purchasing weather alert radios, keeping emergency supplies on hand, and determining personal evacuation routes.

- The Missouri River is operated to serve eight Congressionally-authorized purposes including water quality control, irrigation, navigation, hydropower, recreation, fish and wildlife, water supply and flood risk management.

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- (In response to questions about spring pulse and pallid sturgeon) We are in flood fights all along the Missouri River basin and operating the river for flood risk reduction.

- High releases will continue through at least mid-August to evacuate stored flood water.

- Our goal is to evacuate reservoirs to provide time for damage assessment and repair prior to next year's runoff season.

- Record flows and flooding are the result of above-normal snowpack and extraordinary rain events during the last month.

- Weather conditions continue to change rapidly and we use real-time operations and the best information available at the time to determine our release schedules to keep pace with the rapidly changing weather conditions. We are communicating those changes as soon as new information becomes available.

- We established the Missouri River Joint Information Center to provide citizens in communities living along the Missouri River basin with accurate, timely responses to their questions.

- We are working around-the-clock to deal with the challenging weather and assist communities impacted by flooding.

- This will be a long and sometimes frustrating and intense effort, but we are committed to working together to avoid the loss of life, minimize damages and help communities.

- Each day, we update the reservoir forecast with new rain and snow information to ensure that release schedules keep pace with the dynamic weather conditions.

- Across the basin, the Corps has supplied millions of sandbags, pumps, and thousands of feet of Hesco bastions for the construction of temporary levees to help communities prepare for the floodwaters. This is a national effort with many additional supplies coming in from across the country.

- We have highly-trained, disciplined teams of engineers and emergency response personnel engaged in this flood fight at critical spots along the river.

- Flood inundation maps from Garrison Dam in Riverdale, North Dakota to Rulo, Neb. are posted to our Web page and Facebook for the public to view. We are offering these as helpful tools to communities and citizens to prepare for the high water.

- Our initial release plans were based on rains already received as well as what was in the forecast for snowmelt. The continuous heavy rains we are experiencing throughout the basin have dramatically altered our release plans and if we continue to receive these heavy rains, major revisions in those plans may be necessary.

- We have seen precipitation levels that are 300 to 600 percent of normal in the upper basin, which is extremely unusual.

- Significant flooding in cities, towns and agricultural land is expected in North and South Dakota with many areas from Sioux City, Iowa, to the Mississippi River rising above flood stage.

- Flows from five of the six dams are expected to reach a minimum record of 150,000 cubic feet per second. Previous high releases were 70,000 cfs out of Gavins Point Dam in the fall of 1997.

- Without the reservoir system in place, impacts from flooding would be much worse. The system is operating as designed.

- We have a vigilant dam safety program. Our dams are inspected and maintained on rigid schedules and are well-prepared to handle this onslaught of floodwaters. This is what they were designed to do. Our dams are sound.

- Our dams are structurally sound and are not experiencing any symptoms that would indicate potential failure. We inspect and maintain them on rigid schedules. Public safety is our number one priority.

- We are working closely with state and local emergency management teams to identify areas that may be potentially impacted by floods to provide residents with the most current information and help protect vital public infrastructure.

- State and local emergency management teams will be the point of contact for residents needing information about flooding in their area.

- During our flood response activities throughout the basin, we will provide regular updates directly to the public at OmahaUSACE on Facebook, Twitter and YouTube.

- Flooded areas are expected to be inundated for several months. Moving water out of the reservoirs is essential to prevent the spillways from being overtopped which would make flooding much worse.

- Our release plan is based on the rain we've already received and the forecast snow melt. More heavy rain storms could cause major revisions.

- At these levels, additional releases do not significantly change the footprint of the flooding, only the depth.

- Releases from the Missouri River basin will reach the Mississippi River basin, but are coming in about two weeks after the crest and we expect the impact to be minimal.

Platte River Basin

- Corps technical team members have met with the state of Wyoming Office of Homeland Security to discuss efforts on the North Platte River.

- Construction has been initiated for the earthen levees for the North Platte with an expected completion date of June 6.

[redacted] NWO

From: Oldham, Margaret NWO
Sent: Friday, June 03, 2011 5:34 PM
To: Blechinger, Erik T NWO
Cc: [redacted] NWK; Quinn, Kevin R NWO; Farmer, Monique L NWO; Williamson, Eileen L NWO; Farhat, Jody S NWD02
Subject: Col. Ruch's comments- 3 June, 6 p.m. News Conference (UNCLASSIFIED)
Attachments: finaldraft_Col Ruch Update for News Conference_June 3.docx

Classification: UNCLASSIFIED
Caveats: NONE

Final draft attached

VR

Maggie Oldham
Public Affairs Officer
Omaha District, USACE
Office: (402) 995-2416
BB: (402) 650-8154
margaret.e.oldham@usace.army.mil

Classification: UNCLASSIFIED
Caveats: NONE

Col Ruch – Update for News Conference – Friday 3 June

Good evening. Again tonight, I want to share new information with you.

Protecting lives is our number-one priority and will remain so throughout this high water event. I want to remind the public again to remain vigilant of the safety risks associated with these high water events.

I want to remind you we have many useful resources on Facebook and on the Omaha District Web Page. We are offering these materials to help communities and citizens prepare for the high water events. Please call us with any questions and work with your local officials to determine any necessary preparations you should make in your area.

Across the basin, we've supplied 12.8 million sandbags, 16 pumps, over 1,400 rolls of poly and more than 28 thousand linear feet of Hesco . More sandbags and materials are on their way. We are working with sources throughout the country to supply equipment and personnel to support this effort.

We have many U.S. Army Corps of Engineers personnel on site at strategic locations along the river meeting with local communities to see how we can assist them in meeting their needs.

MONTANA

- A team from Omaha will be at Roundup this weekend to provide technical and direct assistance to address erosion in the city's levee, to protect critical infrastructure.
- Our Fort Peck Project Office is working to get 10 thousand sandbags and poly as requested by Treasure County.
- Eight gates were opened yesterday at Fort Peck Dam. All 16 gates are now open, releasing 12 thousand cfs. Fort Peck Project Office staff are aware of a minor erosion issue in the channel upstream of the spillway gates. Strong winds

and wave action are causing erosion. We will address this by issuing a contract to place riprap or additional rocks to protect the spillway.

NORTH DAKOTA

- We have a team member on site providing technical assistance at the request of McLean County for the City of Washburn and Mercer County for the City of Stanton.

- We put in another relief well yesterday evening at Williston levee and continue to add berm material. We will continue to monitor this site.

- We re-opened the spillway gates at Garrison Dam last night. We continued passing floodwater through the gate today, raising the flow rate gradually. The plan was to re-close the gates later today and then inspect the minor surface erosion. If erosion persists, we'll do some minor patching...cleaning those areas and adding grout. The erosion likely occurred from natural freezing and thawing action over time. Any temporary closure of the spillway gates has NO impact on the current water release schedule as additional water is released through the regulating tunnels to meet the schedule.

- At Bismarck and Mandan we are on schedule to move out with releases as planned. At both sites, 100% completion of construction is anticipated for June 3rd.

    - Levees- Bismarck - 7.2 miles. Most sections are complete. Newer sections going well. Overall project is 90% complete.

    - Levees - Mandan - 2.8 miles. Mandan project is 75% complete. The contractor is working with several crews on earthen levee and Hescos.

- A Corps team is on site working with the Standing Rock Sioux Tribe to address their concerns. We awarded a contract to S.J. Louis from Rockville, Minnesota for $71,295 for erosion protection of critical public infrastructure at the Sitting Bull Site and the Fort Yates Water Intake. Work started yesterday and about 10% of the work was complete as of this morning. We expect to open bids today for a contract for erosion protection along the causeway. We delivered sandbags and poly to the Tribe today.

SOUTH DAKOTA –

- Construction continues on schedule at Pierre/Fort Pierre. We're on track for June 4 completion. At Pierre, 100 percent of the base contract is complete, with 90 percent up to final grade. 50 percent complete with plastic. At Fort Pierre the north level is 90 percent at base contract grade and 35 percent at base plus 2 feet. At Fort Pierre South, the project is70% at final grade.

- Work has started at Dakota Dunes. The contractor is staging the area and filling sandbags. After evacuation completes, the contractor will start placing the risk reduction structure. Hescos and levee work will start as early as midnight tonight.

- We are providing technical assistance to Yankton to address streambank erosion concerns.

NEBRASKA –

- We awarded a $1.6 million dollar contract at South Sioux City last night to the firm ME Collins. The project includes six segments of 11 thousand linear feet of embankments. Construction will start tomorrow morning with an expected completion on June 7.

- Dakota City requested assistance today for construction of an embankment to protect critical infrastructure. We are expecting to award a contract tonight.

- We have a tech team at Cargill at Blair, Nebraska, which asked us for technical assistance as they consider constructing their own levee there. We also provided technical assistance and are working with the NRD on issues they are managing at Offutt Air Force Base.

- We have supplied sandbags to protect critical infrastructure in the communities of Decatur, Peru and Bellevue. We are also working to provide sandbags to Big Elk Park.

- At the request of Cass County, we provided technical assistance to the city of Plattsmouth to address critical infrastructure issues.

- At North Platte, the modification of the channel excavation to complete the berm to keep the overflow in the channel is 95 percent complete. Construction has begun and is 50 percent complete for a flood risk reduction structure—a levee—for the city. There are multiple crews on most reaches. This project involves 13 reaches and is on schedule. The lift station project is also awarded and complete.

- Corps staff continue meeting with communities from Grand Island to the State Line on the North Platte River. They finished at Scottsbluff last night. We are sending a pump to support a temporary levee in Terrytown. The Maxwell survey will be complete today.

IOWA

- We've met with levee sponsors to provide technical assistance to address their needs in the area north of the old Nebraska City Bridge and McPaul in Fremont County.

- In Woodbury County we've furnished additional sandbags and will supply more rolls of plastic this weekend. We provided technical assistant at the request of Woodbury County for two embankment construction projects they're planning to complete. We are also providing technical direct assistance to Mid-American Energy (Port Neal). Sandbags were also provided to Monona County (Blencoe) and we're working a request for a pump. We are also providing sandbags and technical assistance to Council Bluffs Utilities in Pottowattamie County.

WYOMING

We have three teams in Wyoming providing technical assistance at the request of the State. Two Wind River Reservation Teams are meeting with the communities of Dubois, Hudson, Lander, Riverton, and Fort Washakie. The North Platte Basin Team was in Torrington this morning to provide technical assistance regarding protection of critical infrastructure.

***

I want to emphasize that with these forecasts, we should be able to avoid the loss of any life. We have a known water quantity of water going down. This is a historic event based on historic inflows into the Missouri River System.

Don't be complacent. Folks should take these forecasts seriously, look at the inundation maps, and if you have any questions, call us.

In closing, I am confident of the structural integrity of our dams. We inspect our dams regularly and maintain them on rigid schedules. This is what they were designed to do. They are well prepared to handle these high waters.

[redacted] NWO

From: Farmer, Monique L NWO
Sent: Friday, June 03, 2011 5:19 PM
To: Farhat, Jody S NWD02; [redacted] NWO
Cc: Williamson, Eileen L NWO
Subject: Flood_Fight_Talking_Points_03June11.docx (UNCLASSIFIED)
Attachments: Flood_Fight_Talking_Points_03June11.docx

Classification: UNCLASSIFIED
Caveats: NONE

Jody:

My updates are highlighted in yellow. Please take a look at my spring pulse talking point. May need some polishing by you.

Thanks,

Monique

Classification: UNCLASSIFIED
Caveats: NONE

Key Messages and Talking Points

ISSUE: Repeated rounds of heavy rain, coupled with record plains snowpack have pushed the Missouri River Reservoirs to very high levels that require aggressive and historic releases out of the main stem reservoirs. Huge rain events during the past month in eastern Montana, northern Wyoming and the Western Dakotas have brought as much rain into the area during the past month as what the regional normally sees in one year (300-600 percent of normal), and the rain continues to accumulate.

BACKGROUND: The Omaha District provides timely and effective technical advice and direct assistance before and during flood events with a goal of reducing flooding risks.

KEY/COMMAND MESSAGES

1. PUBLIC SAFETY

- Protecting lives is our number one priority, which is what this flood fight is all about – people's lives. Without the proper operation of the Missouri River main stem system, more lives and property will be at risk. We recognize that managing and communicating flood risk is a shared responsibility among federal, state, local, Tribal and private partners so people can make well informed public decisions about their safety.
- Our emergency response measures are designed to reduce flooding risks.
- We remind the public to remain vigilant of the safety risks associated with flooding events: high water on levees, flooded roads, high flowing streams and environmental issues such as well contamination.
- As the flood fight continues, residents who live and work near flood-impacted areas should remain vigilant and must be prepared to follow directions from their local emergency management officials.

2. TIMELY RESPONSE & PREPAREDNESS

- We take our flood reduction responsibilities very seriously and are working to do everything within our ability to reduce the risks from these flood events and provide assistance to the communities impacted by them.
- The Corps has a well-trained team of emergency response personnel, equipment and materials available and ready for mobilization if needed.
- When requested, the Corps provides technical assistance such as ice jam monitoring and scheduling water releases to accommodate snow melt and rain runoff.
- The Corps often provides advanced measures such as sandbags, rapid deployment floodwalls, Hesco bastions and temporary levees, to help reduce flooding risk.

3. ASSISTANCE TO COMMUNITIES AND TRIBAL GOVERNMENTS

- Under the authority of Public Law 84-99 and the Flood Control and Coastal Emergencies appropriations, Corps emergency management personnel collaborate with local, county, state, federal and tribal officials to ensure coordinated efforts in flood risk reduction and emergency response activities.

- We are doing everything we can to protect people and their property, which means making difficult choices and decisions.
- In coordination with Tribal governments and States, the Corps deploys flood fighting materials and supplies (sandbags, pumps, and expedient flood fight products), pre-positions flood flight supplies and equipment, and deploys flood engineers to provide technical assistance.
- In 2010, the operations of Corps Flood Damage Reduction projects prevented $23.1 billion in flood-related damages. A 10-year average of annual damages prevented is $25.2 billion.
- When disasters occur, it is not just a local Corps district or office that responds. Personnel and other resources are mobilized across the country to carry out our response missions.
- In any disaster, our top priorities are:
    - Support immediate emergency response priorities;
    - Sustain lives with critical commodities, temporary emergency power and other needs; and,
    - Initiate recovery efforts by assessing and restoring critical infrastructure.

4. EFFECTIVE COMMUNICATION

- We are using all available communication tools to keep the public informed of our emergency response operations, including:

    - Internet http://nwo.usace.army.mil/ - click the flooding link
    - OmahaUSACE on Facebook, Twitter and YouTube
    - Hotline (402) 996-3877 or email us at MRJIC@usace.army.mil
    - We are in the process of establishing a toll-free number

Missouri River Basin

- People living along the river are encouraged to make evacuation plans to protect their possessions and property. Maps for potential flood areas will be available at www.nwo.usace.army.mil and from local emergency management offices.

- In the last month, the upper basin has received more than a year's worth of rain. The heavy precipitation has nearly filled the reservoirs, doing away with most of the flexibility we had built into our operations for this year.

- Corps personnel remain vigilant to continue saving lives, and we are asking the public to remain aware of the safety risks associated with flooding: high water on levees, flooded roads, rapidly flowing streams and environmental issues such as well contamination.

- Releases from the Missouri River dams last fall and throughout the winter of 2010 were above normal to complete the evacuation of the 2010 flood waters. The full flood control capacity of the main stem reservoir system was available at the start of the 2011 runoff season.

- It is important to remember that each flooding event is unique. Varying factors such as rainfall location along the rivers and tributaries, and snowpack melt off patterns shape the characteristics of each flood.

- Safety is a shared responsibility. The Corps coordinates with local officials and communicates with the public on the condition of Corps owned dams. We encourage you to become educated and be aware of local conditions. Planning and preparedness may include purchasing weather alert radios, keeping emergency supplies on hand, and determining personal evacuation routes.

- The Missouri River is operated to serve eight Congressionally-authorized purposes including water quality control, irrigation, navigation, hydropower, recreation, fish and wildlife, water supply and flood risk management.

- The Corps operates the Missouri River main stem reservoir system in alignment with the guidelines set forth in the Missouri River Master Manual.

- The Master Manual was amended in 2006 to include a biological opinion that instructed the Corps to send pulses each year out of Gavins Point Dam in order to provide endangered species protection for the pallid sturgeon. To date, the Corps has only run the spring pulse twice. The amount of water required for the spring pulse is minimal compared to the historic releases we are seeing and projecting throughout the basin.

- Record flows and flooding are the result of above-normal snowpack and extraordinary rain events during the last month.

- Weather conditions continue to change rapidly and we use real-time operations and the best information available at the time to determine our release schedules to keep pace with the rapidly changing weather conditions. We are communicating those changes as soon as new information becomes available.

- We established the Missouri River Joint Information Center to provide citizens in communities living along the Missouri River basin with accurate, timely responses to their questions.

- We are working around-the-clock to deal with the challenging weather and assist communities impacted by flooding.

- This will be a long and sometimes frustrating and intense effort, but we are committed to working together to avoid the loss of life, minimize damages and help communities.

- Each day, we update the reservoir forecast with new rain and snow information to ensure that release schedules keep pace with the dynamic weather conditions.

- Across the basin, the Corps has supplied millions of sandbags, pumps, and thousands of feet of Hesco bastions for the construction of temporary levees to help communities prepare for the floodwaters. This is a national effort with many additional supplies coming in from across the country.

- We have highly-trained, disciplined teams of engineers and emergency response personnel engaged in this flood fight at critical spots along the river.

- Flood inundation maps from Garrison Dam in Riverdale, North Dakota to Rulo, Neb. are posted to our Web page and Facebook for the public to view. We are offering these as helpful tools to communities and citizens to prepare for the high water.

- Our initial release plans were based on rains already received as well as what was in the forecast for snowmelt. The continuous heavy rains we are experiencing throughout the basin have dramatically altered our release plans and if we continue to receive these heavy rains, major revisions in those plans may be necessary.

- We have seen precipitation levels that are 300 to 600 percent of normal in the upper basin, which is extremely unusual.

- Significant flooding in cities, towns and agricultural land is expected in North and South Dakota with many areas from Sioux City, Iowa, to the Mississippi River rising above flood stage.

- Flows from five of the six dams are expected to reach a minimum record of 150,000 cubic feet per second. Previous high releases were 70,000 cfs out of Gavins Point Dam in the fall of 1997.

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- We have a vigilant dam safety program. Our dams are inspected and maintained on rigid schedules and are well-prepared to handle this onslaught of floodwaters. This is what they were designed to do. Our dams are sound.

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- State and local emergency management teams will be the point of contact for residents needing information about flooding in their area.

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- At these levels, additional releases do not significantly change the footprint of the flooding, only the depth.

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Platte River Basin

- Corps technical team members have met with the state of Wyoming Office of Homeland Security to discuss efforts on the North Platte River.

- Construction has been initiated for the earthen levees for the North Platte with an expected completion date of June 6.

[redacted] NWO

From: [redacted] NWO
Sent: Friday, June 03, 2011 5:06 PM
To: [redacted] NWO
Cc: [redacted] NWO; Schenk, Kathryn M NWO; Bertino, John J Jr NWO; Oldham, Margaret NWO; Farhat, Jody S NWD02; [redacted] NWD02; [redacted] NWD02
Subject: RE: Big Bend Next Gate Opening (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

Great news [redacted]...the jewel continues to shine.

-----Original Message-----
From: [redacted] NWO
Sent: Friday, June 03, 2011 4:56 PM
To: Schenk, Kathryn M NWO
Cc: [redacted] NWO; [redacted] NWO
Subject: RE: Big Bend Next Gate Opening (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

Katie

The gate opening went very well.

Gates:	8 gates opened
Opening:	Each gate was open 2'
Spillway Release:	~ 17,200 cfs
Project Release:	~ 101,400 cfs

[redacted]

-----Original Message-----
From: Schenk, Kathryn M NWO
Sent: Friday, June 03, 2011 4:24 PM
To: [redacted] NWO
Subject: Re: Big Bend Next Gate Opening

How did it go?

Message sent via my BlackBerry Wireless Device

----- Original Message -----
From: [redacted] NWO
To: Schenk, Kathryn M NWO; [redacted] NWO; [redacted] NWO; [redacted] NWO; [redacted] NWO; [redacted] NWO
Cc: [redacted] NWO
Sent: Fri Jun 03 13:49:28 2011
Subject: Big Bend Next Gate Opening

Katie

At 1615 we will open all eight gates an additional one foot.

I will notify you when complete.

Keith

Classification: UNCLASSIFIED
Caveats: NONE

Classification: UNCLASSIFIED
Caveats: NONE

[redacted] NWO

From: [redacted] NWO
Sent: Friday, June 03, 2011 4:53 PM
To: 'terry_ellsworth@fws.gov'; 'mmarohl@usbr.gov'; 'todd_frerichs@fws.gov'; 'jalee@nd.gov'; 'jkelsch@nd.gov'; 'glevi@nd.gov'; 'kkovar@daktel.com'; 'Dyke, Steve R.'; 'davek@daktel.com'; 'ggere@usbr.gov'; 'dfewless@state.nd.us'; 'kgoff@nd.gov'; 'lloyd_jones@fws.gov'; 'rijohnson@nd.gov'; 'rfwagner@nd.gov'; 'lrerickson@nd.gov'; 'tdunnigan@KFYRTV.com'; 'pjhuges4@bis.midco.net'
Cc: 'DKrogstad@usbr.gov'; 'Aycock, Gordon L'; 'Erger, Patrick J'; [redacted] NWO; [redacted] NWD02; Farhat, Jody S NWD02; [redacted] NWO; [redacted] NWO; [redacted] NWO; [redacted] NWO; Bertino, John J Jr NWO; [redacted] NWD02; [redacted] NWO; [redacted] NWO; [redacted] NWO; [redacted] NWO; [redacted] NWO; [redacted] NWO; Schenk, Kathryn M NWO; [redacted] NWO; [redacted] NWO; [redacted] NWO; [redacted] NWO; [redacted] NWD02; [redacted] NWO; [redacted] NWO; [redacted] NWO; [redacted] NWO; [redacted] NWO; [redacted] NWD; [redacted] NWO; [redacted] NWD02; [redacted] NWO
Subject: RE: Current Status - Lake Audubon

1. Over the last 24 hours Lake Audubon has risen 0.1 feet and is currently at a level of approximately 1849.5 feet msl. Garrison Reservoir is currently at a level of approximately 1853.9. On June 2, it was decided to hold Lake Audubon levels at 1850, then possibly use additional Lake Audubon storage in mid to late June when mountain snowmelt runoff occurs into Garrison Reservoir. On June 2, releases into Lake Audubon were reduced to provide a slow ramping up to the target pool level in Lake Audubon.

2. It has been decided to hold the Lake Audubon pool at the current level of 1849.5 in order to provide some storage in Lake Audubon in the event of rainfall runoff into Lake Audubon. Based upon Design Memorandum MGR-143, Lake Audubon Study, September 1976, runoff from a 100-year rainfall over Lake Audubon contributing area would be 16,650 acre-feet and would cause a 0.8 foot rise in the Lake Audubon pool level

3. At approximately 3:45 p.m. today, pumping from Lake Audubon pump station was terminated. With pump station shut down and outlet gate closed there should now be zero flow from Garrison Reservoir into Lake Audubon.

4. Please contact me if you have any questions.

Thanks,

[redacted]
Hydraulic Engineer
Water Control & Water Quality Section
[redacted] (office)
[redacted] (cell)

[redacted] NWO

From: [redacted] NWO
Sent: Friday, June 03, 2011 4:25 PM
To: 'Marohl, Michael K'
Cc: [redacted] NWO; 'Krogstad, Duane E'; [redacted] NWD02; [redacted] NWO; 'Erger, Patrick J'; 'DKrogstad@usbr.gov'; 'Aycock, Gordon L'; [redacted] NWO; [redacted] NWD02; Farhat, Jody S NWD02
Subject: Lake Audubon Reservoir Regulation Order - 3 June 2011

SUBJECT: Lake Audubon Reservoir Regulation Order LAUD-11-03

1. This memo confirms oral instructions that were given on June 3 regarding the regulation of releases from Garrison Reservoir into Lake Audubon.

2. Background: Pumping from Garrison Reservoir into Lake Audubon is being conducted in order to take advantage of Lake Audubon storage as part of Garrison Reservoir flood control operations. Lake Audubon is rising at a rate of approximately 0.1 feet per day and is currently at a level of approximately 1849.5 feet msl. Garrison Reservoir is currently at a level of approximately 1854.0 and is forecasted to remain near that level until early July. On June 2, it was decided to hold Lake Audubon levels at 1850, then possibly use additional Lake Audubon storage in mid to late June when mountain snowmelt runoff occurs into Garrison Reservoir. On June 2, releases into Lake Audubon were reduced to provide a slow ramping up to the target pool level in Lake Audubon.

3. It has been decided to hold the Lake Audubon pool at the current level of 1849.5 in order to provide some storage in Lake Audubon in the event of rainfall runoff into Lake Audubon. Based upon Design Memorandum MGR-143, Lake Audubon Study, September 1976, runoff from a 100-year rainfall over Lake Audubon contributing area would be 16,650 acre-feet and would cause a 0.8 foot rise in the Lake Audubon pool level

3. At approximately 1545 hours on Friday, June 3, terminate pumping from Lake Audubon pump station. With pump station shut down and outlet gate closed there should now be zero flow from Garrison Reservoir into Lake Audubon.

4. The release order has been coordinated with members of the Lake Audubon Oversight Committee which includes representatives from the US Army Corps of Engineers, the US Bureau of Reclamation, the US fish and Wildlife Service, the North Dakota (ND) Department of Game and Fish, the ND State Water Commission, and the Garrison Diversion Conservancy District.

5. Please contact me ([redacted] cell) or [redacted] ([redacted]) if you have any questions.

[redacted].
Acting Chief, Water Control and Water Quality Section.
Hydrologic Engineering Branch.
Engineering Division.
U.S. Army Corps of Engineers, Omaha District.

[redacted] NWO

Subject: KFAB Radio Interview (UNCLASSIFIED)
Location: Your Office

Start: Mon 6/6/2011 8:00 AM
End: Mon 6/6/2011 8:30 AM
Show Time As: Tentative

Recurrence: (none)

Meeting Status: Not yet responded

Organizer: Farmer, Monique L NWO
Required Attendees: Farhat, Jody S NWD02

Classification: UNCLASSIFIED
Caveats: NONE

Classification: UNCLASSIFIED
Caveats: NONE

Jody:

Can you do a live radio interview Monday morning? This would give us the opportunity to dispel some of the myths that are out there. KFAB had Scott Vorhees on this morning and there were quite a few. See email below. It would start at 8:20 a.m. and last for about 10 mins.

Kevin,

My wife called and told me there was lot of misinformed discussion on KFAB's Scott Voorhees show this morning. Aside from typical commentary on the COE's flood-control skills, a contractor who worked here recently called in and said there are TVs in all the offices (implying everyone has a TV?) and they're all tuned to Fox News instead of the Weather Channel. I happen to know that is not true.

My wife said the Corps should turn on Scott's show and call in to straighten them out. I told her I'd contact the PA office and let them know. I suspect you have bigger fish to fry right now, but at least I can tell my wife I did what I said I'd do.

They are looking for the following from us Monday:

Per our conversation, here is what we are looking for on Monday morning.

A guest from the Corps that can address the planned outflows from the upstream dams, if there has been any changes in plans over the weekend, how that will impact flooding along the Nebraska-Iowa border, especially in the Omaha metro but mainly from south of Sioux City to Rulo (our listening area). Timelines for when greatest impacts will occur.

We do want to address the most common rumor that the Corps did not release sooner because of impact of breeding areas and habitat for some endangered birds and fish....let's address that. Could releases have been increased sooner...would they have mitigated the impact- and if not, what prevented earlier increases (that one is not so much a vicious rumor but just a question we hear people are asking).

This is in no way an attack/ambush interview but our listeners would think we dropped the ball if we didn't ask questions that they have. We also would like to be the conduit to help quelch rumors if they are untrue. The talk segment is only 8-9 minutes so we would not take listener calls. It ill be a Q&A format and they may follow up with a question based on something the guest says....but this is the primary focus of where the interview will go.

I would like to do this at 820 AM but could do it at 740 AM if you do not have anybody available at 820 AM CT. We will be out by 830 AM. Our host is Gary Sadlemyer...co-host is Scott Voorhees. We usually initiate the call so I would need a phone number (preferably land line) where we could reach the guest. We can use a cell if we have no other choice. for backup, our hotline is 402-556-9000. If the guest must call us, they can use tthat hotline. I would still like to get a backup phone or cell for that person for my use that morning if I need to get hold of the guest.

Finally, of course, I will need the name and title of the guest.

Thank you for all your help and let me know if you have any further questions.

Roger

Roger Olson
Producer- 1110 KFAB Good Morning Show
5010 Underwood Ave.
Omaha, NE 68132

Classification: UNCLASSIFIED
Caveats: NONE

Classification: UNCLASSIFIED
Caveats: NONE

[redacted] NWO

From: [redacted] NWO
Sent: Friday, June 03, 2011 3:41 PM
To: Farhat, Jody S NWD02; [redacted] NWD02; [redacted] NWD02; [redacted], [redacted] NWD02
Subject: FW: Spillway Rating Table Update (UNCLASSIFIED)
Attachments: FP_SPILLWAY_RATING_TABLE.pdf; FTPECKS1.PDF

Classification: UNCLASSIFIED
Caveats: NONE

All:

Are you all aware of this change?

[redacted]

-----Original Message-----
From: [redacted] NWO
Sent: Friday, June 03, 2011 12:18 PM
To: DLL-CENWO-FP-Operator
Subject: Spillway Rating Table Update (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

The spillway rating table has been updated in ppcs as per the attached tables.

[redacted]
Electrical/PPCS Engineer
U.S. Army Corps of Engineers
Operations Division
Office: [redacted]
Cell: [redacted]

Classification: UNCLASSIFIED
Caveats: NONE

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Caveats: NONE

Fort Peck Spillway Gate Discharge Table (Single Gate)

Pool Elevation	Gate Opening (ft)																		
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
2230	0	433	812	1134	1171														
2231	0	479	910	1291	1563														
2232	0	521	998	1430	1811	1995													
2233	0	560	1079	1557	1989	2372	2464												
2234	0	596	1155	1674	2151	2585	2969												
2235	0	631	1226	1784	2303	2781	3216	3416											
2236	0	663	1292	1887	2444	2964	3443	3880	4077										
2237	0	694	1356	1985	2579	3136	3657	4138	4577	4678									
2238	0	724	1417	2078	2706	3300	3858	4380	4862	5304	5308								
2239	0	752	1475	2167	2828	3456	4050	4609	5132	5616	5967								
2240	0	780	1531	2253	2944	3605	4233	4828	5388	5912	6399	6653							
2241	0	806	1585	2335	3057	3748	4408	5037	5632	6194	6720	7272	7367						
2242	0	832	1637	2415	3165	3886	4577	5238	5867	6463	7026	7620	8107						
2243	0	857	1688	2492	3270	4019	4740	5431	6092	6722	7320	7953	8569	8872					
2244	0	881	1737	2567	3371	4148	4897	5618	6309	6971	7602	8272	8929	9579	9662				
2245	0	905	1785	2640	3469	4273	5049	5798	6519	7211	7874	8580	9274	9965	10476				
2246	0	928	1831	2711	3565	4394	5197	5974	6723	7444	8137	8877	9607	10337	11108	11315			
2247	0	950	1877	2780	3658	4512	5341	6144	6920	7670	8391	9164	9929	10696	11509	12176			
2248	0	972	1921	2847	3749	4627	5481	6309	7112	7889	8638	9443	10241	11043	11895	12783	13061		
2249	0	993	1965	2913	3838	4740	5618	6471	7299	8102	8879	9713	10543	11380	12270	13200	13968		
2250	0	1014	2007	2977	3925	4850	5751	6628	7481	8310	9113	9976	10837	11707	12633	13603	14553	14897	
2251	0	1035	2048	3040	4010	4957	5881	6782	7659	8512	9341	10233	11124	12025	12987	13995	14986	15847	
2252	0	1055	2089	3102	4093	5062	6009	6932	7833	8710	9564	10483	11403	12335	13331	14377	15406	16390	16819
2253	0	1075	2129	3162	4174	5165	6133	7080	8003	8904	9781	10727	11675	12637	13666	14748	15815	16837	17757
2254	0	1094	2168	3222	4254	5266	6256	7224	8170	9093	9994	10966	11941	12932	13993	15110	16214	17273	18230
2255	0	1113	2207	3280	4333	5365	6376	7365	8333	9279	10202	11200	12202	13221	14313	15464	16603	17699	18691
2256	0	1132	2245	3337	4410	5462	6493	7504	8493	9461	10407	11429	12457	13504	14626	15810	16983	18114	19141

19	20	21

17812
18826
19594 19860
20078 20870 20913
RS-20110603

FORT PECK DAM SPILLWAY RATING TABLE
DISCHARGE IN CFS **(ONE BAY)**

~~629~~ Indicates Pool Elevation is greater than Top of Gate Elevation
1145 Indicates discharge is in the unstable range between weir and orifice flow

GATE LIP ELEV.	2225.50	2226.00	2226.50	2227.00	2227.50	2228.00	2228.50	2229.00	2229.50	2230.00	2230.50	2231.00	2231.50	2232.00	2232.50	2233.00	2233.50	2234.00	2234.50	2235.00	2235.50	2236.00	2236.50	2237.00	2237.50	2238.00
POOL ELEV.	GATE DIAL INDICATOR OPENING IN FEET																									
	0.5	1.0	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0	6.5	7.0	7.5	8.0	8.5	9.0	9.5	10.0	10.5	11.0	11.5	12.0	12.5	13.0
2225.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2225.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2225.2	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
2225.3	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
2225.4	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
2225.5	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28
2225.6	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39
2225.7	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50
2225.8	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62
2225.9	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75
2226.0	86	89	89	89	89	89	89	89	89	89	89	89	89	89	89	89	89	89	89	89	89	89	89	89	89	89
2226.1	92	104	104	104	104	104	104	104	104	104	104	104	104	104	104	104	104	104	104	104	104	104	104	104	104	104
2226.2	98	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120
2226.3	103	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136
2226.4	108	154	154	154	154	154	154	154	154	154	154	154	154	154	154	154	154	154	154	154	154	154	154	154	154	154
2226.5	113	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172
2226.6	117	190	190	190	190	190	190	190	190	190	190	190	190	190	190	190	190	190	190	190	190	190	190	190	190	190
2226.7	122	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210
2226.8	126	229	230	230	230	230	230	230	230	230	230	230	230	230	230	230	230	230	230	230	230	230	230	230	230	230
2226.9	130	238	251	251	251	251	251	251	251	251	251	251	251	251	251	251	251	251	251	251	251	251	251	251	251	251
2227.0	134	247	272	272	272	272	272	272	272	272	272	272	272	272	272	272	272	272	272	272	272	272	272	272	272	272
2227.1	138	255	294	294	294	294	294	294	294	294	294	294	294	294	294	294	294	294	294	294	294	294	294	294	294	294
2227.2	142	263	317	317	317	317	317	317	317	317	317	317	317	317	317	317	317	317	317	317	317	317	317	317	317	317
2227.3	145	271	341	341	341	341	341	341	341	341	341	341	341	341	341	341	341	341	341	341	341	341	341	341	341	341
2227.4	149	279	365	365	365	365	365	365	365	365	365	365	365	365	365	365	365	365	365	365	365	365	365	365	365	365
2227.5	152	288	389	389	389	389	389	389	389	389	389	389	389	389	389	389	389	389	389	389	389	389	389	389	389	389
2227.6	156	293	411	414	414	414	414	414	414	414	414	414	414	414	414	414	414	414	414	414	414	414	414	414	414	414
2227.7	159	300	422	440	440	440	440	440	440	440	440	440	440	440	440	440	440	440	440	440	440	440	440	440	440	440
2227.8	162	307	433	466	466	466	466	466	466	466	466	466	466	466	466	466	466	466	466	466	466	466	466	466	466	466
2227.9	166	314	444	493	493	493	493	493	493	493	493	493	493	493	493	493	493	493	493	493	493	493	493	493	493	493
2228.0	169	321	455	520	520	520	520	520	520	520	520	520	520	520	520	520	520	520	520	520	520	520	520	520	520	520
2228.1	172	327	465	548	548	548	548	548	548	548	548	548	548	548	548	548	548	548	548	548	548	548	548	548	548	548
2228.2	175	334	475	576	576	576	576	576	576	576	576	576	576	576	576	576	576	576	576	576	576	576	576	576	576	576
2228.3	178	340	485	605	605	605	605	605	605	605	605	605	605	605	605	605	605	605	605	605	605	605	605	605	605	605
2228.4	181	346	495	625	635	635	635	635	635	635	635	635	635	635	635	635	635	635	635	635	635	635	635	635	635	635
2228.5	184	352	504	638	665	665	665	665	665	665	665	665	665	665	665	665	665	665	665	665	665	665	665	665	665	665
2228.6	187	358	513	651	695	695	695	695	695	695	695	695	695	695	695	695	695	695	695	695	695	695	695	695	695	695
2228.7	189	364	522	664	726	726	726	726	726	726	726	726	726	726	726	726	726	726	726	726	726	726	726	726	726	726
2228.8	192	370	531	677	758	758	758	758	758	758	758	758	758	758	758	758	758	758	758	758	758	758	758	758	758	758
2228.9	195	375	540	689	789	789	789	789	789	789	789	789	789	789	789	789	789	789	789	789	789	789	789	789	789	789
2229.0	197	381	549	701	822	822	822	822	822	822	822	822	822	822	822	822	822	822	822	822	822	822	822	822	822	822
2229.1	200	386	558	713	852	855	855	855	855	855	855	855	855	855	855	855	855	855	855	855	855	855	855	855	855	855
2229.2	203	392	566	725	867	888	888	888	888	888	888	888	888	888	888	888	888	888	888	888	888	888	888	888	888	888
2229.3	205	397	574	736	882	922	922	922	922	922	922	922	922	922	922	922	922	922	922	922	922	922	922	922	922	922
2229.4	208	402	582	748	897	956	956	956	956	956	956	956	956	956	956	956	956	956	956	956	956	956	956	956	956	956
2229.5	210	407	591	759	912	991	991	991	991	991	991	991	991	991	991	991	991	991	991	991	991	991	991	991	991	991
2229.6	213	413	599	770	926	1026	1026	1026	1026	1026	1026	1026	1026	1026	1026	1026	1026	1026	1026	1026	1026	1026	1026	1026	1026	1026
2229.7	215	418	606	781	940	1062	1062	1062	1062	1062	1062	1062	1062	1062	1062	1062	1062	1062	1062	1062	1062	1062	1062	1062	1062	1062
2229.8	218	423	614	791	954	1098	1098	1098	1098	1098	1098	1098	1098	1098	1098	1098	1098	1098	1098	1098	1098	1098	1098	1098	1098	1098
2229.9	220	428	622	802	968	1117	1134	1134	1134	1134	1134	1134	1134	1134	1134	1134	1134	1134	1134	1134	1134	1134	1134	1134	1134	1134

FORT PECK DAM SPILLWAY RATING TABLE
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GATE LIP ELEV.	2225.50	2226.00	2226.50	2227.00	2227.50	2228.00	2228.50	2229.00	2229.50	2230.00	2230.50	2231.00	2231.50	2232.00	2232.50	2233.00	2233.50	2234.00	2234.50	2235.00	2235.50	2236.00	2236.50	2237.00	2237.50	2238.00
POOL ELEV.	GATE DIAL INDICATOR OPENING IN FEET																									
	0.5	1.0	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0	6.5	7.0	7.5	8.0	8.5	9.0	9.5	10.0	10.5	11.0	11.5	12.0	12.5	13.0
2230.0	223	~~433~~	~~629~~	~~812~~	~~981~~	~~1134~~	1171	1171	1171	1171	1171	1171	1171	1171	1171	1171	1171	1171	1171	1171	1171	1171	1171	1171	1171	1171
2230.1	225	~~437~~	~~637~~	~~823~~	~~994~~	~~1151~~	~~1208~~	~~1208~~	~~1208~~	~~1208~~	~~1208~~	1208	1208	1208	1208	1208	1208	1208	1208	1208	1208	1208	1208	1208	1208	1208
2230.2	227	~~442~~	~~644~~	~~833~~	~~1008~~	~~1167~~	~~1246~~	~~1246~~	~~1246~~	~~1246~~	~~1246~~	1246	1246	1246	1246	1246	1246	1246	1246	1246	1246	1246	1246	1246	1246	1246
2230.3	230	~~447~~	~~652~~	~~843~~	~~1020~~	~~1183~~	~~1284~~	~~1284~~	~~1284~~	~~1284~~	~~1284~~	1284	1284	1284	1284	1284	1284	1284	1284	1284	1284	1284	1284	1284	1284	1284
2230.4	232	~~452~~	~~659~~	~~853~~	~~1033~~	~~1199~~	~~1323~~	~~1323~~	~~1323~~	~~1323~~	~~1323~~	1323	1323	1323	1323	1323	1323	1323	1323	1323	1323	1323	1323	1323	1323	1323
2230.5	234	~~456~~	~~666~~	~~863~~	~~1046~~	~~1215~~	~~1362~~	~~1362~~	~~1362~~	~~1362~~	~~1362~~	1362	1362	1362	1362	1362	1362	1362	1362	1362	1362	1362	1362	1362	1362	1362
2230.6	236	461	~~673~~	~~872~~	~~1058~~	~~1230~~	~~1388~~	~~1401~~	~~1401~~	~~1401~~	~~1401~~	~~1401~~	1401	1401	1401	1401	1401	1401	1401	1401	1401	1401	1401	1401	1401	1401
2230.7	239	465	~~680~~	~~882~~	~~1071~~	~~1246~~	~~1406~~	~~1441~~	~~1441~~	~~1441~~	~~1441~~	~~1441~~	1441	1441	1441	1441	1441	1441	1441	1441	1441	1441	1441	1441	1441	1441
2230.8	241	470	~~687~~	~~892~~	~~1083~~	~~1261~~	~~1424~~	~~1481~~	~~1481~~	~~1481~~	~~1481~~	~~1481~~	1481	1481	1481	1481	1481	1481	1481	1481	1481	1481	1481	1481	1481	1481
2230.9	243	474	~~694~~	~~901~~	~~1095~~	~~1276~~	~~1442~~	~~1522~~	~~1522~~	~~1522~~	~~1522~~	~~1522~~	1522	1522	1522	1522	1522	1522	1522	1522	1522	1522	1522	1522	1522	1522
2231.0	245	479	~~701~~	~~910~~	~~1107~~	~~1291~~	~~1460~~	~~1563~~	~~1563~~	~~1563~~	~~1563~~	~~1563~~	1563	1563	1563	1563	1563	1563	1563	1563	1563	1563	1563	1563	1563	1563
2231.1	247	483	~~707~~	~~919~~	~~1119~~	~~1305~~	~~1478~~	~~1605~~	~~1605~~	~~1605~~	~~1605~~	~~1605~~	1605	1605	1605	1605	1605	1605	1605	1605	1605	1605	1605	1605	1605	1605
2231.2	249	487	~~714~~	~~929~~	~~1131~~	~~1320~~	~~1495~~	~~1646~~	~~1646~~	~~1646~~	~~1646~~	~~1646~~	1646	1646	1646	1646	1646	1646	1646	1646	1646	1646	1646	1646	1646	1646
2231.3	251	492	721	~~938~~	~~1142~~	~~1334~~	~~1512~~	~~1676~~	~~1689~~	~~1689~~	~~1689~~	~~1689~~	1689	1689	1689	1689	1689	1689	1689	1689	1689	1689	1689	1689	1689	1689
2231.4	254	496	727	~~948~~	~~1154~~	~~1348~~	~~1529~~	~~1696~~	~~1731~~	~~1731~~	~~1731~~	~~1731~~	1731	1731	1731	1731	1731	1731	1731	1731	1731	1731	1731	1731	1731	1731
2231.5	256	500	734	~~955~~	~~1165~~	~~1362~~	~~1546~~	~~1716~~	~~1774~~	~~1774~~	~~1774~~	~~1774~~	1774	1774	1774	1774	1774	1774	1774	1774	1774	1774	1774	1774	1774	1774
2231.6	258	504	740	~~964~~	~~1176~~	~~1376~~	~~1562~~	~~1736~~	~~1818~~	~~1818~~	~~1818~~	~~1818~~	1818	1818	1818	1818	1818	1818	1818	1818	1818	1818	1818	1818	1818	1818
2231.7	260	509	746	~~973~~	~~1187~~	~~1390~~	~~1579~~	~~1755~~	~~1862~~	~~1862~~	~~1862~~	~~1862~~	1862	1862	1862	1862	1862	1862	1862	1862	1862	1862	1862	1862	1862	1862
2231.8	262	513	753	~~981~~	~~1198~~	~~1403~~	~~1595~~	~~1774~~	~~1906~~	~~1906~~	~~1906~~	~~1906~~	1906	1906	1906	1906	1906	1906	1906	1906	1906	1906	1906	1906	1906	1906
2231.9	264	517	759	~~990~~	~~1209~~	~~1417~~	~~1611~~	~~1793~~	~~1950~~	~~1950~~	~~1950~~	~~1950~~	~~1950~~	1950	1950	1950	1950	1950	1950	1950	1950	1950	1950	1950	1950	1950
2232.0	266	521	765	998	~~1220~~	~~1430~~	~~1627~~	~~1811~~	~~1982~~	~~1995~~	~~1995~~	~~1995~~	~~1995~~	~~1995~~	1995	1995	1995	1995	1995	1995	1995	1995	1995	1995	1995	1995
2232.1	268	525	771	1007	~~1231~~	~~1443~~	~~1643~~	~~1830~~	~~2004~~	~~2040~~	~~2040~~	~~2040~~	~~2040~~	~~2040~~	2040	2040	2040	2040	2040	2040	2040	2040	2040	2040	2040	2040
2232.2	270	529	777	1015	~~1241~~	~~1456~~	~~1658~~	~~1848~~	~~2025~~	~~2086~~	~~2086~~	~~2086~~	~~2086~~	~~2086~~	2086	2086	2086	2086	2086	2086	2086	2086	2086	2086	2086	2086
2232.3	272	533	784	1023	~~1252~~	~~1469~~	~~1674~~	~~1866~~	~~2046~~	~~2132~~	~~2132~~	~~2132~~	~~2132~~	~~2132~~	2132	2132	2132	2132	2132	2132	2132	2132	2132	2132	2132	2132
2232.4	273	537	790	1032	~~1262~~	~~1482~~	~~1689~~	~~1884~~	~~2067~~	~~2179~~	~~2179~~	~~2179~~	~~2179~~	~~2179~~	2179	2179	2179	2179	2179	2179	2179	2179	2179	2179	2179	2179
2232.5	275	541	796	1040	~~1273~~	~~1495~~	~~1704~~	~~1902~~	~~2087~~	~~2225~~	~~2225~~	~~2225~~	~~2225~~	~~2225~~	2225	2225	2225	2225	2225	2225	2225	2225	2225	2225	2225	2225
2232.6	277	545	801	1048	~~1283~~	~~1507~~	~~1720~~	~~1920~~	~~2107~~	~~2272~~	~~2272~~	~~2272~~	~~2272~~	~~2272~~	2272	2272	2272	2272	2272	2272	2272	2272	2272	2272	2272	2272
2232.7	279	548	807	1056	1293	~~1520~~	~~1734~~	~~1937~~	~~2128~~	~~2305~~	~~2320~~	~~2320~~	~~2320~~	~~2320~~	~~2320~~	2320	2320	2320	2320	2320	2320	2320	2320	2320	2320	2320
2232.8	281	552	813	1064	1304	~~1532~~	~~1749~~	~~1955~~	~~2147~~	~~2328~~	~~2368~~	~~2368~~	~~2368~~	~~2368~~	~~2368~~	2368	2368	2368	2368	2368	2368	2368	2368	2368	2368	2368
2232.9	283	556	819	1072	1314	~~1544~~	~~1764~~	~~1972~~	~~2167~~	~~2350~~	~~2416~~	~~2416~~	~~2416~~	~~2416~~	~~2416~~	2416	2416	2416	2416	2416	2416	2416	2416	2416	2416	2416
2233.0	285	560	825	1079	1324	~~1557~~	~~1779~~	~~1989~~	~~2187~~	~~2372~~	~~2464~~	~~2464~~	~~2464~~	~~2464~~	~~2464~~	2464	2464	2464	2464	2464	2464	2464	2464	2464	2464	2464
2233.1	287	564	831	1087	1333	~~1569~~	~~1793~~	~~2006~~	~~2206~~	~~2394~~	~~2513~~	~~2513~~	~~2513~~	~~2513~~	~~2513~~	2513	2513	2513	2513	2513	2513	2513	2513	2513	2513	2513
2233.2	288	567	836	1095	1343	~~1581~~	~~1807~~	~~2022~~	~~2225~~	~~2416~~	~~2563~~	~~2563~~	~~2563~~	~~2563~~	~~2563~~	2563	2563	2563	2563	2563	2563	2563	2563	2563	2563	2563
2233.3	290	571	842	1103	1353	~~1593~~	~~1821~~	~~2039~~	~~2245~~	~~2438~~	~~2612~~	~~2612~~	~~2612~~	~~2612~~	~~2612~~	2612	2612	2612	2612	2612	2612	2612	2612	2612	2612	2612
2233.4	292	575	847	1110	1363	1605	~~1836~~	~~2055~~	~~2263~~	~~2459~~	~~2643~~	~~2662~~	~~2662~~	~~2662~~	~~2662~~	~~2662~~	2662	2662	2662	2662	2662	2662	2662	2662	2662	2662
2233.5	294	578	853	1118	1372	1616	~~1850~~	~~2072~~	~~2282~~	~~2481~~	~~2667~~	~~2712~~	~~2712~~	~~2712~~	~~2712~~	~~2712~~	2712	2712	2712	2712	2712	2712	2712	2712	2712	2712
2233.6	296	582	859	1125	1382	1628	~~1863~~	~~2088~~	~~2301~~	~~2502~~	~~2691~~	~~2763~~	~~2763~~	~~2763~~	~~2763~~	~~2763~~	2763	2763	2763	2763	2763	2763	2763	2763	2763	2763
2233.7	297	586	864	1133	1391	1640	~~1877~~	~~2104~~	~~2319~~	~~2523~~	~~2714~~	~~2814~~	~~2814~~	~~2814~~	~~2814~~	~~2814~~	2814	2814	2814	2814	2814	2814	2814	2814	2814	2814
2233.8	299	589	870	1140	1401	1651	~~1891~~	~~2120~~	~~2338~~	~~2544~~	~~2738~~	~~2865~~	~~2865~~	~~2865~~	~~2865~~	~~2865~~	2865	2865	2865	2865	2865	2865	2865	2865	2865	2865
2233.9	301	593	875	1148	1410	1663	~~1905~~	~~2136~~	~~2356~~	~~2564~~	~~2761~~	~~2917~~	~~2917~~	~~2917~~	~~2917~~	~~2917~~	2917	2917	2917	2917	2917	2917	2917	2917	2917	2917
2234.0	303	596	880	1155	1419	1674	~~1918~~	~~2151~~	~~2374~~	~~2585~~	~~2784~~	~~2969~~	~~2969~~	~~2969~~	~~2969~~	~~2969~~	2969	2969	2969	2969	2969	2969	2969	2969	2969	2969
2234.1	304	600	886	1162	1429	1685	1931	~~2167~~	~~2392~~	~~2605~~	~~2807~~	~~2996~~	~~3021~~	~~3021~~	~~3021~~	~~3021~~	3021	3021	3021	3021	3021	3021	3021	3021	3021	3021
2234.2	306	603	891	1169	1438	1696	1945	~~2182~~	~~2409~~	~~2625~~	~~2829~~	~~3021~~	~~3074~~	~~3074~~	~~3074~~	~~3074~~	3074	3074	3074	3074	3074	3074	3074	3074	3074	3074
2234.3	308	607	896	1176	1447	1708	1958	~~2198~~	~~2427~~	~~2645~~	~~2852~~	~~3046~~	~~3127~~	~~3127~~	~~3127~~	~~3127~~	3127	3127	3127	3127	3127	3127	3127	3127	3127	3127
2234.4	310	610	902	1184	1456	1719	1971	~~2213~~	~~2444~~	~~2665~~	~~2874~~	~~3071~~	~~3180~~	~~3180~~	~~3180~~	~~3180~~	3180	3180	3180	3180	3180	3180	3180	3180	3180	3180
2234.5	311	614	907	1191	1465	1730	1984	~~2228~~	~~2462~~	~~2685~~	~~2896~~	~~3096~~	~~3234~~	~~3234~~	~~3234~~	~~3234~~	3234	3234	3234	3234	3234	3234	3234	3234	3234	3234
2234.6	313	617	912	1198	1474	1741	1997	~~2243~~	~~2479~~	~~2704~~	~~2918~~	~~3120~~	~~3288~~	~~3288~~	~~3288~~	~~3288~~	3288	3288	3288	3288	3288	3288	3288	3288	3288	3288
2234.7	315	620	917	1205	1483	1751	2010	~~2258~~	~~2496~~	~~2723~~	~~2940~~	~~3144~~	~~3337~~	~~3342~~	~~3342~~	~~3342~~	~~3342~~	3342	3342	3342	3342	3342	3342	3342	3342	3342
2234.8	316	624	922	1212	1492	1762	2023	2273	~~2513~~	~~2743~~	~~2961~~	~~3168~~	~~3364~~	~~3397~~	~~3397~~	~~3397~~	~~3397~~	~~3397~~	3397	3397	3397	3397	3397	3397	3397	3397
2234.9	318	627	927	1219	1501	1773	2035	2288	~~2530~~	~~2762~~	~~2983~~	~~3192~~	~~3390~~	~~3452~~	~~3452~~	~~3452~~	~~3452~~	~~3452~~	3452	3452	3452	3452	3452	3452	3452	3452

FORT PECK DAM SPILLWAY RATING TABLE
DISCHARGE IN CFS **(ONE BAY)**

~~629~~ Indicates Pool Elevation is greater than Top of Gate Elevation
1145 Indicates discharge is in the unstable range between weir and orifice flow

GATE LIP ELEV.	2225.50	2226.00	2226.50	2227.00	2227.50	2228.00	2228.50	2229.00	2229.50	2230.00	2230.50	2231.00	2231.50	2232.00	2232.50	2233.00	2233.50	2234.00	2234.50	2235.00	2235.50	2236.00	2236.50	2237.00	2237.50	2238.00
POOL ELEV.	GATE DIAL INDICATOR OPENING IN FEET																			GATE DIAL INDICATOR OPENING IN FEET						
	0.5	1.0	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0	6.5	7.0	7.5	8.0	8.5	9.0	9.5	10.0	10.5	11.0	11.5	12.0	12.5	13.0
2235.0	320	631	933	1226	1509	1784	2048	2303	2547	2781	3004	3216	3416	3507	3507	3507	3507	3507	3507	3507	3507	3507	3507	3507	3507	3507
2235.1	321	634	938	1232	1518	1794	2061	2317	2564	2800	3025	3239	3442	3562	3562	3562	3562	3562	3562	3562	3562	3562	3562	3562	3562	3562
2235.2	323	637	943	1239	1527	1805	2073	2332	2580	2818	3046	3263	3468	3618	3618	3618	3618	3618	3618	3618	3618	3618	3618	3618	3618	3618
2235.3	325	640	948	1246	1535	1815	2085	2346	2597	2837	3067	3286	3493	3675	3675	3675	3675	3675	3675	3675	3675	3675	3675	3675	3675	3675
2235.4	326	644	953	1253	1544	1826	2098	2360	2613	2855	3087	3309	3519	3717	3731	3731	3731	3731	3731	3731	3731	3731	3731	3731	3731	3731
2235.5	328	647	958	1259	1552	1836	2110	2375	2629	2874	3108	3331	3544	3745	3788	3788	3788	3788	3788	3788	3788	3788	3788	3788	3788	3788
2235.6	329	650	963	1266	1561	1846	2122	2389	2645	2892	3128	3354	3569	3773	3845	3845	3845	3845	3845	3845	3845	3845	3845	3845	3845	3845
2235.7	331	653	967	1273	1569	1856	2134	2403	2662	2910	3149	3377	3594	3800	3903	3903	3903	3903	3903	3903	3903	3903	3903	3903	3903	3903
2235.8	333	657	972	1279	1577	1867	2146	2417	2677	2928	3169	3399	3618	3827	3960	3960	3960	3960	3960	3960	3960	3960	3960	3960	3960	3960
2235.9	334	660	977	1286	1586	1877	2158	2431	2693	2946	3189	3421	3643	3854	4018	4018	4018	4018	4018	4018	4018	4018	4018	4018	4018	4018
2236.0	336	663	982	1292	1594	1887	2170	2444	2709	2964	3209	3443	3667	3880	4077	4077	4077	4077	4077	4077	4077	4077	4077	4077	4077	4077
2236.1	337	666	987	1299	1602	1897	2182	2458	2725	2982	3228	3465	3691	3907	4111	4136	4136	4136	4136	4136	4136	4136	4136	4136	4136	4136
2236.2	339	669	992	1305	1610	1907	2194	2472	2740	2999	3248	3487	3715	3933	4140	4195	4195	4195	4195	4195	4195	4195	4195	4195	4195	4195
2236.3	340	673	996	1312	1619	1917	2206	2485	2756	3017	3268	3509	3739	3959	4168	4254	4254	4254	4254	4254	4254	4254	4254	4254	4254	4254
2236.4	342	676	1001	1318	1627	1926	2217	2499	2771	3034	3287	3530	3763	3985	4197	4313	4313	4313	4313	4313	4313	4313	4313	4313	4313	4313
2236.5	343	679	1006	1325	1635	1936	2229	2512	2787	3051	3307	3552	3787	4011	4226	4373	4373	4373	4373	4373	4373	4373	4373	4373	4373	4373
2236.6	345	682	1011	1331	1643	1946	2240	2526	2802	3069	3326	3573	3810	4037	4253	4434	4434	4434	4434	4434	4434	4434	4434	4434	4434	4434
2236.7	346	685	1015	1337	1651	1956	2252	2539	2817	3086	3345	3594	3833	4062	4280	4488	4494	4494	4494	4494	4494	4494	4494	4494	4494	4494
2236.8	348	688	1020	1344	1659	1965	2263	2552	2832	3103	3364	3615	3856	4087	4308	4516	4555	4555	4555	4555	4555	4555	4555	4555	4555	4555
2236.9	349	691	1025	1350	1667	1975	2275	2565	2847	3120	3383	3636	3879	4113	4335	4547	4616	4616	4616	4616	4616	4616	4616	4616	4616	4616
2237.0	351	694	1029	1356	1675	1985	2286	2579	2862	3136	3401	3657	3902	4138	4363	4577	4678	4678	4678	4678	4678	4678	4678	4678	4678	4678
2237.1	352	697	1034	1362	1682	1994	2297	2592	2877	3153	3420	3677	3925	4162	4390	4606	4739	4739	4739	4739	4739	4739	4739	4739	4739	4739
2237.2	354	700	1038	1368	1690	2004	2308	2605	2892	3170	3439	3698	3948	4187	4417	4635	4801	4801	4801	4801	4801	4801	4801	4801	4801	4801
2237.3	355	703	1043	1375	1698	2013	2320	2617	2906	3186	3457	3718	3970	4212	4443	4664	4864	4864	4864	4864	4864	4864	4864	4864	4864	4864
2237.4	357	706	1047	1381	1706	2022	2331	2630	2921	3203	3475	3739	3992	4238	4470	4693	4906	4926	4926	4926	4926	4926	4926	4926	4926	4926
2237.5	358	709	1052	1387	1713	2032	2342	2643	2936	3219	3494	3759	4015	4260	4498	4722	4937	4989	4989	4989	4989	4989	4989	4989	4989	4989
2237.6	360	712	1056	1393	1721	2041	2353	2656	2950	3236	3512	3779	4037	4285	4522	4750	4968	5052	5052	5052	5052	5052	5052	5052	5052	5052
2237.7	361	715	1061	1399	1729	2050	2364	2668	2965	3252	3530	3799	4059	4309	4549	4778	4998	5116	5116	5116	5116	5116	5116	5116	5116	5116
2237.8	363	718	1065	1405	1736	2060	2375	2681	2979	3268	3548	3819	4080	4332	4575	4807	5028	5179	5179	5179	5179	5179	5179	5179	5179	5179
2237.9	364	721	1070	1411	1744	2069	2385	2694	2993	3284	3566	3839	4102	4356	4600	4835	5059	5243	5243	5243	5243	5243	5243	5243	5243	5243
2238.0	366	724	1074	1417	1751	2078	2396	2706	3007	3300	3584	3858	4124	4380	4626	4862	5088	5304	5308	5308	5308	5308	5308	5308	5308	5308
2238.1	367	727	1079	1423	1759	2087	2407	2718	3021	3316	3601	3878	4145	4403	4652	4890	5118	5336	5372	5372	5372	5372	5372	5372	5372	5372
2238.2	369	730	1083	1429	1766	2096	2418	2731	3036	3332	3619	3897	4167	4427	4677	4917	5148	5368	5437	5437	5437	5437	5437	5437	5437	5437
2238.3	370	732	1087	1434	1774	2105	2428	2743	3050	3347	3637	3917	4188	4450	4702	4945	5177	5400	5503	5503	5503	5503	5503	5503	5503	5503
2238.4	371	735	1092	1440	1781	2114	2439	2755	3064	3363	3654	3936	4209	4473	4727	4972	5207	5431	5568	5568	5568	5568	5568	5568	5568	5568
2238.5	373	738	1096	1446	1789	2123	2449	2768	3077	3379	3671	3955	4230	4498	4752	4999	5236	5463	5634	5634	5634	5634	5634	5634	5634	5634
2238.6	374	741	1100	1452	1796	2132	2460	2780	3091	3394	3689	3974	4251	4519	4777	5026	5265	5494	5700	5700	5700	5700	5700	5700	5700	5700
2238.7	376	744	1105	1458	1803	2141	2470	2792	3105	3410	3706	3993	4272	4542	4802	5053	5294	5525	5746	5766	5766	5766	5766	5766	5766	5766
2238.8	377	747	1109	1463	1810	2150	2481	2804	3119	3425	3723	4012	4293	4564	4826	5079	5322	5555	5779	5833	5833	5833	5833	5833	5833	5833
2238.9	378	749	1113	1469	1818	2158	2491	2816	3132	3440	3740	4031	4314	4587	4851	5106	5351	5586	5811	5900	5900	5900	5900	5900	5900	5900
2239.0	380	752	1117	1475	1825	2167	2501	2828	3146	3456	3757	4050	4334	4609	4875	5132	5379	5616	5844	5967	5967	5967	5967	5967	5967	5967
2239.1	381	755	1122	1481	1832	2176	2512	2840	3159	3471	3774	4069	4355	4632	4899	5158	5407	5647	5876	6034	6034	6034	6034	6034	6034	6034
2239.2	383	758	1126	1486	1839	2185	2522	2851	3173	3486	3791	4087	4375	4654	4924	5184	5435	5677	5909	6102	6102	6102	6102	6102	6102	6102
2239.3	384	761	1130	1492	1846	2193	2532	2863	3186	3501	3808	4106	4395	4676	4948	5210	5463	5707	5941	6164	6170	6170	6170	6170	6170	6170
2239.4	385	763	1134	1498	1854	2202	2542	2875	3200	3516	3824	4124	4415	4698	4971	5236	5491	5737	5973	6199	6238	6238	6238	6238	6238	6238
2239.5	387	766	1138	1503	1861	2210	2552	2887	3213	3531	3841	4143	4435	4720	4995	5261	5519	5766	6004	6232	6307	6307	6307	6307	6307	6307
2239.6	388	769	1143	1509	1868	2219	2563	2898	3226	3546	3858	4161	4455	4742	5019	5287	5546	5796	6036	6266	6375	6375	6375	6375	6375	6375
2239.7	389	772	1147	1514	1875	2227	2573	2910	3239	3561	3874	4179	4475	4763	5042	5312	5573	5825	6067	6300	6444	6444	6444	6444	6444	6444
2239.8	391	774	1151	1520	1882	2236	2583	2921	3252	3575	3890	4197	4495	4785	5066	5338	5601	5854	6098	6333	6514	6514	6514	6514	6514	6514
2239.9	392	777	1155	1525	1889	2244	2593	2933	3266	3590	3907	4215	4515	4806	5089	5363	5628	5883	6129	6366	6583	6583	6583	6583	6583	6583

FORT PECK DAM SPILLWAY RATING TABLE
DISCHARGE IN CFS **(ONE BAY)**

~~629~~ Indicates Pool Elevation is greater than Top of Gate Elevation
~~1145~~ Indicates discharge is in the unstable range between weir and orifice flow

GATE LIP ELEV.	2225.50	2226.00	2226.50	2227.00	2227.50	2228.00	2228.50	2229.00	2229.50	2230.00	2230.50	2231.00	2231.50	2232.00	2232.50	2233.00	2233.50	2234.00	2234.50	2235.00	2235.50	2236.00	2236.50	2237.00	2237.50	2238.00
POOL	GATE DIAL INDICATOR OPENING IN FEET																					GATE DIAL INDICATOR OPENING IN FEET				
ELEV.	0.5	1.0	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0	6.5	7.0	7.5	8.0	8.5	9.0	9.5	10.0	10.5	11.0	11.5	12.0	12.5	13.0
2240.0	393	780	1159	1531	1896	2253	2602	2944	3279	3605	3923	4233	4535	4828	5112	~~5388~~	~~5655~~	~~5912~~	~~6160~~	~~6399~~	~~6653~~	~~6653~~	~~6653~~	~~6653~~	~~6653~~	6653
2240.1	395	782	1163	1536	1903	2261	2612	2956	3292	3619	3939	4251	4554	4849	5135	5413	~~5682~~	~~5941~~	~~6191~~	~~6432~~	~~6689~~	~~6723~~	~~6723~~	~~6723~~	~~6723~~	~~6723~~
2240.2	396	785	1167	1542	1909	2270	2622	2967	3304	3634	3955	4269	4574	4870	5158	5438	~~5708~~	~~5970~~	~~6222~~	~~6464~~	~~6724~~	~~6794~~	~~6794~~	~~6794~~	~~6794~~	~~6794~~
2240.3	397	788	1171	1547	1916	2278	2632	2979	3317	3648	3971	4286	4593	4891	5181	5462	~~5735~~	~~5998~~	~~6252~~	~~6497~~	~~6758~~	~~6865~~	~~6865~~	~~6865~~	~~6865~~	~~6865~~
2240.4	399	790	1175	1553	1923	2286	2642	2990	3330	3663	3987	4304	4612	4912	5204	5487	~~5761~~	~~6026~~	~~6283~~	~~6529~~	~~6793~~	~~6936~~	~~6936~~	~~6936~~	~~6936~~	~~6936~~
2240.5	400	793	1179	1558	1930	2294	2652	3001	3343	3677	4003	4322	4632	4933	5227	5512	~~5788~~	~~6055~~	~~6313~~	~~6561~~	~~6827~~	~~7007~~	~~7007~~	~~7007~~	~~7007~~	~~7007~~
2240.6	401	796	1183	1564	1937	2303	2661	3012	3356	3691	4019	4339	4651	4954	5249	5536	~~5814~~	~~6083~~	~~6343~~	~~6593~~	~~6861~~	~~7078~~	~~7078~~	~~7078~~	~~7078~~	~~7078~~
2240.7	403	798	1187	1569	1944	2311	2671	3023	3368	3706	4035	4356	4670	4975	5272	5560	~~5840~~	~~6111~~	~~6373~~	~~6625~~	~~6895~~	~~7150~~	~~7150~~	~~7150~~	~~7150~~	~~7150~~
2240.8	404	801	1191	1574	1950	2319	2681	3035	3381	3720	4051	4374	4689	4996	5294	5584	5866	~~6139~~	~~6402~~	~~6657~~	~~6929~~	~~7200~~	~~7222~~	~~7222~~	~~7222~~	~~7222~~
2240.9	405	804	1195	1580	1957	2327	2690	3046	3394	3734	4066	4391	4708	5016	5317	5608	5892	~~6166~~	~~6432~~	~~6688~~	~~6963~~	~~7236~~	~~7294~~	~~7294~~	~~7294~~	~~7294~~
2241.0	407	806	1199	1585	1964	2335	2700	3057	3406	3748	4082	4408	4727	5037	5339	5632	5918	~~6194~~	~~6461~~	~~6720~~	~~6996~~	~~7272~~	~~7367~~	~~7367~~	~~7367~~	~~7367~~
2241.1	408	809	1203	1590	1970	2343	2709	3068	3419	3762	4098	4425	4745	5057	5361	5656	5943	~~6221~~	~~6491~~	~~6751~~	~~7030~~	~~7308~~	~~7440~~	~~7440~~	~~7440~~	~~7440~~
2241.2	409	812	1207	1596	1977	2352	2719	3079	3431	3776	4113	4443	4764	5078	5383	5680	5969	~~6249~~	~~6520~~	~~6782~~	~~7063~~	~~7343~~	~~7513~~	~~7513~~	~~7513~~	~~7513~~
2241.3	410	814	1211	1601	1984	2360	2728	3090	3443	3790	4129	4460	4783	5098	5405	5704	5994	~~6276~~	~~6549~~	~~6813~~	~~7096~~	~~7378~~	~~7586~~	~~7586~~	~~7586~~	~~7586~~
2241.4	412	817	1215	1606	1990	2368	2738	3100	3456	3804	4144	4477	4801	5118	5427	5727	6019	~~6303~~	~~6578~~	~~6844~~	~~7129~~	~~7413~~	~~7660~~	~~7660~~	~~7660~~	~~7660~~
2241.5	413	819	1219	1611	1997	2376	2747	3111	3468	3817	4159	4493	4820	5138	5449	5751	6045	6330	~~6607~~	~~6875~~	~~7161~~	~~7448~~	~~7723~~	~~7733~~	~~7733~~	~~7733~~
2241.6	414	822	1223	1617	2004	2384	2756	3122	3480	3831	4175	4510	4838	5158	5470	5774	6070	6357	~~6635~~	~~6905~~	~~7194~~	~~7483~~	~~7759~~	~~7808~~	~~7808~~	~~7808~~
2241.7	416	824	1226	1622	2010	2391	2766	3133	3493	3845	4190	4527	4857	5178	5492	5797	6095	6384	~~6664~~	~~6936~~	~~7226~~	~~7517~~	~~7796~~	~~7882~~	~~7882~~	~~7882~~
2241.8	417	827	1230	1627	2017	2399	2775	3144	3505	3859	4205	4544	4875	5198	5513	5821	6120	6410	~~6692~~	~~6966~~	~~7259~~	~~7552~~	~~7833~~	~~7957~~	~~7957~~	~~7957~~
2241.9	418	829	1234	1632	2023	2407	2784	3154	3517	3872	4220	4560	4893	5218	5535	5844	6144	6437	~~6721~~	~~6996~~	~~7291~~	~~7586~~	~~7869~~	~~8031~~	~~8031~~	~~8031~~
2242.0	419	832	1238	1637	2030	2415	2794	3165	3529	3886	4235	4577	4911	5238	5556	5867	6169	6463	~~6749~~	~~7026~~	~~7323~~	~~7620~~	~~7905~~	~~8107~~	~~8107~~	~~8107~~
2242.1	421	835	1242	1642	2036	2423	2803	3176	3541	3899	4250	4594	4929	5257	5577	5890	6194	6490	~~6777~~	~~7056~~	~~7355~~	~~7654~~	~~7941~~	~~8182~~	~~8182~~	~~8182~~
2242.2	422	837	1246	1648	2043	2431	2812	3186	3553	3913	4265	4610	4947	5277	5599	5912	6218	6516	~~6805~~	~~7086~~	~~7386~~	~~7688~~	~~7977~~	~~8258~~	~~8258~~	~~8258~~
2242.3	423	840	1249	1653	2049	2439	2821	3197	3565	3926	4280	4626	4965	5296	5620	5935	6243	6542	6833	~~7115~~	~~7418~~	~~7721~~	~~8013~~	~~8309~~	~~8333~~	~~8333~~
2242.4	424	842	1253	1658	2055	2446	2830	3207	3577	3940	4295	4643	4983	5316	5641	5958	6267	6568	6861	~~7145~~	~~7450~~	~~7755~~	~~8048~~	~~8346~~	~~8410~~	~~8410~~
2242.5	426	845	1257	1663	2062	2454	2839	3218	3589	3953	4310	4659	5001	5335	5662	5980	6291	6594	6888	~~7174~~	~~7481~~	~~7788~~	~~8084~~	~~8384~~	~~8486~~	~~8486~~
2242.6	427	847	1261	1668	2068	2462	2848	3228	3601	3966	4324	4675	5019	5354	5683	6003	6315	6620	6916	~~7204~~	~~7512~~	~~7821~~	~~8119~~	~~8421~~	~~8563~~	~~8563~~
2242.7	428	850	1265	1673	2075	2469	2857	3239	3613	3979	4339	4691	5036	5374	5703	6025	6339	6645	6943	~~7233~~	~~7543~~	~~7855~~	~~8154~~	~~8459~~	~~8640~~	~~8640~~
2242.8	429	852	1268	1678	2081	2477	2866	3249	3624	3993	4354	4708	5054	5393	5724	6048	6363	6671	6971	~~7262~~	~~7574~~	~~7887~~	~~8189~~	~~8496~~	~~8717~~	~~8717~~
2242.9	430	854	1272	1683	2087	2485	2875	3259	3636	4006	4368	4724	5072	5412	5745	6070	6387	6696	6998	~~7291~~	~~7605~~	~~7920~~	~~8224~~	~~8533~~	~~8794~~	~~8794~~
2243.0	432	857	1276	1688	2093	2492	2884	3270	3648	4019	4383	4740	5089	5431	5765	6092	6411	6722	7025	7320	~~7636~~	~~7953~~	~~8259~~	~~8569~~	~~8864~~	~~8872~~
2243.1	433	859	1279	1693	2100	2500	2893	3280	3659	4032	4397	4756	5106	5450	5786	6114	6435	6747	7052	7348	~~7666~~	~~7985~~	~~8293~~	~~8606~~	~~8903~~	~~8950~~
2243.2	434	862	1283	1698	2106	2507	2902	3290	3671	4045	4412	4772	5124	5469	5806	6136	6458	6772	7079	7377	~~7697~~	~~8018~~	~~8327~~	~~8642~~	~~8941~~	~~9028~~
2243.3	435	864	1287	1703	2112	2515	2911	3300	3683	4058	4426	4787	5141	5488	5827	6158	6482	6798	7105	7405	~~7727~~	~~8050~~	~~8362~~	~~8679~~	~~8980~~	~~9106~~
2243.4	437	867	1290	1708	2118	2523	2920	3311	3694	4071	4441	4803	5158	5506	5847	6180	6505	6823	7132	7434	~~7757~~	~~8082~~	~~8396~~	~~8715~~	~~9018~~	~~9185~~
2243.5	438	869	1294	1713	2125	2530	2929	3321	3706	4084	4455	4819	5176	5525	5867	6202	6528	6848	7159	7462	~~7787~~	~~8114~~	~~8430~~	~~8751~~	~~9056~~	~~9264~~
2243.6	439	872	1298	1718	2131	2538	2938	3331	3717	4097	4469	4835	5193	5544	5887	6223	6552	6872	7185	7490	~~7817~~	~~8146~~	~~8464~~	~~8787~~	~~9094~~	~~9343~~
2243.7	440	874	1301	1722	2137	2545	2946	3341	3729	4110	4483	4850	5210	5562	5907	6245	6575	6897	7212	7518	~~7847~~	~~8178~~	~~8497~~	~~8822~~	~~9132~~	~~9422~~
2243.8	441	876	1305	1727	2143	2552	2955	3351	3740	4122	4498	4866	5227	5581	5927	6266	6598	6922	7238	7546	7877	~~8209~~	~~8531~~	~~8858~~	~~9169~~	~~9500~~
2243.9	443	879	1309	1732	2149	2560	2964	3361	3751	4135	4512	4881	5244	5599	5947	6288	6621	6946	7264	7574	7906	~~8241~~	~~8564~~	~~8893~~	~~9207~~	~~9540~~
2244.0	444	881	1312	1737	2155	2567	2972	3371	3763	4148	4526	4897	5261	5618	5967	6309	6644	6971	7290	7602	7936	~~8272~~	~~8597~~	~~8929~~	~~9244~~	~~9579~~
2244.1	445	884	1316	1742	2161	2575	2981	3381	3774	4160	4540	4912	5278	5636	5987	6331	6667	6995	7316	7629	7965	~~8304~~	~~8631~~	~~8964~~	~~9281~~	~~9618~~
2244.2	446	886	1319	1747	2168	2582	2990	3391	3785	4173	4554	4928	5295	5654	6007	6352	6689	7020	7342	7657	7995	~~8335~~	~~8664~~	~~8999~~	~~9318~~	~~9658~~
2244.3	447	888	1323	1752	2174	2589	2998	3401	3797	4186	4568	4943	5311	5672	6026	6373	6712	7044	7368	7684	8024	~~8366~~	~~8697~~	~~9034~~	~~9355~~	~~9697~~
2244.4	448	891	1327	1756	2180	2597	3007	3411	3808	4198	4582	4958	5328	5691	6046	6394	6735	7068	7394	7712	8053	~~8397~~	~~8729~~	~~9068~~	~~9392~~	~~9735~~
2244.5	450	893	1330	1761	2186	2604	3015	3421	3819	4211	4596	4974	5345	5709	6066	6415	6757	7092	7419	7739	8082	~~8428~~	~~8762~~	~~9103~~	~~9428~~	~~9774~~
2244.6	451	895	1334	1766	2192	2611	3024	3430	3830	4223	4609	4989	5361	5727	6085	6436	6780	7116	7445	7766	8111	~~8458~~	~~8795~~	~~9137~~	~~9465~~	~~9813~~
2244.7	452	898	1337	1771	2198	2618	3033	3440	3841	4236	4623	5004	5378	5745	6104	6457	6802	7140	7470	7793	8140	8489	~~8827~~	~~9172~~	~~9501~~	~~9851~~
2244.8	453	900	1341	1775	2204	2626	3041	3450	3852	4248	4637	5019	5394	5763	6124	6478	6825	7164	7496	7820	8168	8519	~~8859~~	~~9206~~	~~9537~~	~~9889~~
2244.9	454	902	1344	1780	2210	2633	3050	3460	3863	4260	4651	5034	5411	5781	6143	6499	6847	7188	7521	7847	8197	8550	~~8891~~	~~9240~~	~~9573~~	~~9927~~

FORT PECK DAM SPILLWAY RATING TABLE
DISCHARGE IN CFS **(ONE BAY)**

~~628~~ Indicates Pool Elevation is greater than Top of Gate Elevation
1145 Indicates discharge is in the unstable range between weir and orifice flow

GATE LIP ELEV.	2225.50	2226.00	2226.50	2227.00	2227.50	2228.00	2228.50	2229.00	2229.50	2230.00	2230.50	2231.00	2231.50	2232.00	2232.50	2233.00	2233.50	2234.00	2234.50	2235.00	2235.50	2236.00	2236.50	2237.00	2237.50	2238.00
POOL	GATE DIAL INDICATOR OPENING IN FEET																							GATE DIAL INDICATOR OPENING IN FEET		
ELEV.	0.5	1.0	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0	6.5	7.0	7.5	8.0	8.5	9.0	9.5	10.0	10.5	11.0	11.5	12.0	12.5	13.0
2245.0	455	905	1348	1785	2216	2640	3058	3469	3874	4273	4664	5049	5427	5798	6162	6519	6869	7211	7546	7874	8225	8580	8923	9274	9609	9965
2245.1	457	907	1351	1790	2222	2647	3066	3479	3885	4285	4678	5064	5444	5816	6182	6540	6891	7235	7571	7900	8254	8610	8955	9308	9645	10003
2245.2	458	909	1355	1794	2227	2654	3075	3489	3896	4297	4692	5079	5460	5834	6201	6560	6913	7258	7596	7927	8282	8640	8987	9342	9681	10041
2245.3	459	912	1358	1799	2233	2661	3083	3498	3907	4310	4705	5094	5476	5851	6220	6581	6935	7282	7621	7953	8310	8670	9019	9375	9716	10078
2245.4	460	914	1362	1804	2239	2669	3091	3508	3918	4322	4719	5109	5492	5869	6239	6601	6957	7305	7646	7980	8338	8700	9051	9409	9751	10116
2245.5	461	916	1365	1808	2245	2676	3100	3518	3929	4334	4732	5124	5509	5887	6258	6622	6979	7329	7671	8006	8366	8730	9082	9442	9787	10153
2245.6	462	919	1369	1813	2251	2683	3108	3527	3940	4346	4746	5139	5525	5904	6277	6642	7000	7352	7696	8032	8394	8759	9113	9475	9822	10190
2245.7	463	921	1372	1818	2257	2690	3116	3537	3951	4358	4759	5153	5541	5922	6295	6662	7022	7375	7720	8059	8422	8789	9145	9508	9857	10227
2245.8	465	923	1376	1822	2263	2697	3125	3546	3961	4370	4772	5168	5557	5939	6314	6683	7044	7398	7745	8085	8450	8818	9176	9541	9892	10264
2245.9	466	925	1379	1827	2268	2704	3133	3556	3972	4382	4786	5183	5573	5956	6333	6703	7065	7421	7769	8111	8477	8848	9207	9574	9926	10301
2246.0	467	928	1383	1831	2274	2711	3141	3565	3983	4394	4799	5197	5589	5974	6352	6723	7087	7444	7794	8137	8505	8877	9238	9607	9961	10337
2246.1	468	930	1386	1836	2280	2718	3149	3575	3994	4406	4812	5212	5605	5991	6370	6743	7108	7467	7818	8162	8532	8906	9269	9640	9995	10374
2246.2	469	932	1389	1841	2286	2725	3158	3584	4004	4418	4825	5226	5620	6008	6389	6763	7130	7490	7842	8188	8560	8935	9300	9672	10030	10410
2246.3	470	934	1393	1845	2291	2732	3166	3593	4015	4430	4839	5241	5636	6025	6407	6783	7151	7512	7867	8214	8587	8964	9330	9705	10064	10446
2246.4	471	937	1396	1850	2297	2739	3174	3603	4025	4442	4852	5255	5652	6042	6426	6802	7172	7535	7891	8239	8614	8993	9361	9737	10098	10482
2246.5	472	939	1400	1854	2303	2745	3182	3612	4036	4454	4865	5270	5668	6059	6444	6822	7193	7558	7915	8265	8641	9022	9391	9769	10132	10518
2246.6	474	941	1403	1859	2309	2752	3190	3621	4047	4465	4878	5284	5683	6076	6462	6842	7214	7580	7939	8290	8668	9050	9422	9801	10166	10554
2246.7	475	943	1406	1863	2314	2759	3198	3631	4057	4477	4891	5298	5699	6093	6481	6862	7235	7603	7963	8316	8695	9079	9452	9833	10200	10590
2246.8	476	946	1410	1868	2320	2766	3206	3640	4068	4489	4904	5313	5715	6110	6499	6881	7256	7625	7986	8341	8722	9107	9482	9865	10233	10625
2246.9	477	948	1413	1872	2326	2773	3214	3649	4078	4501	4917	5327	5730	6127	6517	6901	7277	7647	8010	8366	8749	9136	9512	9897	10267	10661
2247.0	478	950	1416	1877	2331	2780	3222	3658	4089	4512	4930	5341	5746	6144	6535	6920	7298	7670	8034	8391	8776	9164	9542	9929	10301	10696
2247.1	479	952	1420	1881	2337	2787	3230	3668	4099	4524	4943	5355	5761	6161	6553	6940	7319	7692	8058	8416	8802	9192	9572	9961	10334	10731
2247.2	480	955	1423	1886	2343	2793	3238	3677	4109	4536	4956	5369	5776	6177	6571	6959	7340	7714	8081	8441	8829	9220	9602	9992	10367	10766
2247.3	481	957	1426	1890	2348	2800	3246	3686	4120	4547	4968	5383	5792	6194	6589	6978	7361	7736	8105	8466	8855	9249	9631	10023	10400	10801
2247.4	482	959	1430	1895	2354	2807	3254	3695	4130	4559	4981	5397	5807	6211	6607	6998	7381	7758	8128	8491	8881	9277	9661	10055	10433	10836
2247.5	483	961	1433	1899	2359	2814	3262	3704	4140	4570	4994	5411	5822	6227	6625	7017	7402	7780	8151	8516	8908	9304	9691	10086	10466	10871
2247.6	485	963	1436	1904	2365	2820	3270	3713	4151	4582	5007	5425	5838	6244	6643	7036	7422	7802	8175	8540	8934	9332	9720	10117	10499	10906
2247.7	486	965	1440	1908	2370	2827	3278	3722	4161	4593	5019	5439	5853	6260	6661	7055	7443	7824	8198	8565	8960	9360	9749	10148	10532	10940
2247.8	487	968	1443	1912	2376	2834	3286	3731	4171	4605	5032	5453	5868	6277	6679	7074	7463	7845	8221	8590	8986	9388	9779	10179	10564	10975
2247.9	488	970	1446	1917	2382	2840	3293	3740	4181	4616	5045	5467	5883	6293	6696	7093	7483	7867	8244	8614	9012	9415	9808	10210	10597	11009
2248.0	489	972	1449	1921	2387	2847	3301	3749	4191	4627	5057	5481	5898	6309	6714	7112	7504	7889	8267	8638	9038	9443	9837	10241	10629	11043
2248.1	490	974	1453	1926	2393	2854	3309	3758	4202	4639	5070	5495	5913	6326	6732	7131	7524	7910	8290	8663	9064	9470	9866	10271	10662	11077
2248.2	491	976	1456	1930	2398	2860	3317	3767	4212	4650	5082	5509	5928	6342	6749	7150	7544	7932	8313	8687	9090	9497	9895	10302	10694	11111
2248.3	492	978	1459	1934	2404	2867	3325	3776	4222	4661	5095	5522	5943	6358	6767	7169	7564	7953	8336	8711	9115	9525	9924	10332	10726	11145
2248.4	493	981	1462	1939	2409	2874	3332	3785	4232	4673	5107	5536	5958	6374	6784	7188	7584	7975	8358	8735	9141	9552	9952	10363	10758	11179
2248.5	494	983	1466	1943	2414	2880	3340	3794	4242	4684	5120	5550	5973	6391	6802	7206	7604	7996	8381	8759	9167	9579	9981	10383	10790	11213
2248.6	495	985	1469	1947	2420	2887	3348	3803	4252	4695	5132	5563	5988	6407	6819	7225	7624	8017	8404	8783	9192	9606	10009	10423	10822	11247
2248.7	496	987	1472	1952	2425	2893	3355	3812	4262	4706	5145	5577	6003	6423	6836	7244	7644	8039	8426	8807	9217	9633	10038	10453	10854	11280
2248.8	497	989	1475	1956	2431	2900	3363	3821	4272	4718	5157	5590	6018	6439	6854	7262	7664	8060	8449	8831	9243	9660	10066	10483	10885	11313
2248.9	498	991	1479	1960	2436	2906	3371	3829	4282	4729	5169	5604	6033	6455	6871	7281	7684	8081	8471	8855	9268	9686	10095	10513	10917	11347
2249.0	499	993	1482	1965	2442	2913	3378	3838	4292	4740	5182	5618	6047	6471	6888	7299	7704	8102	8494	8879	9293	9713	10123	10543	10948	11380
2249.1	501	996	1485	1969	2447	2919	3386	3847	4302	4751	5194	5631	6062	6487	6905	7318	7723	8123	8516	8902	9318	9740	10151	10573	10980	11413
2249.2	502	998	1488	1973	2452	2926	3394	3856	4312	4762	5206	5644	6077	6503	6922	7336	7743	8144	8538	8926	9343	9766	10179	10603	11011	11446
2249.3	503	1000	1491	1977	2458	2932	3401	3864	4322	4773	5218	5658	6091	6518	6939	7354	7763	8165	8560	8950	9368	9793	10207	10632	11042	11479
2249.4	504	1002	1495	1982	2463	2939	3409	3873	4331	4784	5231	5671	6106	6534	6957	7373	7782	8186	8583	8973	9393	9819	10235	10662	11073	11512
2249.5	505	1004	1498	1986	2468	2945	3416	3882	4341	4795	5243	5685	6120	6550	6974	7391	7802	8206	8605	8997	9418	9846	10263	10691	11104	11545
2249.6	506	1006	1501	1990	2474	2952	3424	3890	4351	4806	5255	5698	6135	6566	6990	7409	7821	8227	8627	9020	9443	9872	10291	10721	11135	11577
2249.7	507	1008	1504	1994	2479	2958	3431	3899	4361	4817	5267	5711	6149	6581	7007	7427	7841	8248	8649	9043	9468	9898	10319	10750	11166	11610
2249.8	508	1010	1507	1998	2484	2964	3439	3908	4371	4828	5279	5724	6164	6597	7024	7445	7860	8269	8671	9066	9492	9924	10346	10779	11197	11642
2249.9	509	1012	1510	2003	2490	2971	3446	3916	4380	4839	5291	5738	6178	6613	7041	7463	7879	8289	8693	9090	9517	9950	10374	10808	11228	11675

FORT PECK DAM SPILLWAY RATING TABLE
DISCHARGE IN CFS **(ONE BAY)**

~~629~~ Indicates Pool Elevation is greater than Top of Gate Elevation
1145 Indicates discharge is in the unstable range between weir and orifice flow

GATE LIP ELEV.	2225.50	2226.00	2226.50	2227.00	2227.50	2228.00	2228.50	2229.00	2229.50	2230.00	2230.50	2231.00	2231.50	2232.00	2232.50	2233.00	2233.50	2234.00	2234.50	2235.00	2235.50	2236.00	2236.50	2237.00	2237.50	2238.00
POOL ELEV.	GATE DIAL INDICATOR OPENING IN FEET																					GATE DIAL INDICATOR OPENING IN FEET				
	0.5	1.0	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0	6.5	7.0	7.5	8.0	8.5	9.0	9.5	10.0	10.5	11.0	11.5	12.0	12.5	13.0
2250.0	510	1014	1513	2007	~~2495~~	~~2977~~	~~3454~~	~~3925~~	~~4390~~	~~4850~~	~~5303~~	~~5751~~	~~6193~~	~~6628~~	~~7058~~	~~7481~~	~~7899~~	~~8310~~	~~8714~~	~~9113~~	~~9542~~	~~9976~~	~~10401~~	~~10837~~	~~11258~~	~~11707~~
2250.1	511	1016	1517	2011	~~2500~~	~~2984~~	~~3461~~	~~3933~~	~~4400~~	~~4860~~	~~5315~~	~~5764~~	~~6207~~	~~6644~~	~~7075~~	~~7499~~	~~7918~~	~~8330~~	~~8736~~	~~9136~~	~~9566~~	~~10002~~	~~10429~~	~~10866~~	~~11289~~	~~11739~~
2250.2	512	1019	1520	2015	~~2505~~	~~2990~~	~~3469~~	~~3942~~	~~4409~~	~~4871~~	~~5327~~	~~5777~~	~~6221~~	~~6659~~	~~7091~~	~~7517~~	~~7937~~	~~8351~~	~~8758~~	~~9159~~	~~9590~~	~~10028~~	~~10456~~	~~10895~~	~~11319~~	~~11771~~
2250.3	513	1021	1523	2019	~~2511~~	~~2996~~	~~3476~~	~~3951~~	~~4419~~	~~4882~~	~~5339~~	~~5790~~	~~6235~~	~~6675~~	~~7108~~	~~7535~~	~~7956~~	~~8371~~	~~8780~~	~~9182~~	~~9615~~	~~10054~~	~~10483~~	~~10924~~	~~11350~~	~~11803~~
2250.4	514	1023	1526	2024	~~2516~~	~~3003~~	~~3484~~	~~3959~~	~~4429~~	~~4893~~	~~5351~~	~~5803~~	~~6250~~	~~6690~~	~~7125~~	~~7553~~	~~7975~~	~~8391~~	~~8801~~	~~9205~~	~~9639~~	~~10080~~	~~10511~~	~~10953~~	~~11380~~	~~11835~~
2250.5	515	1025	1529	2028	~~2521~~	~~3009~~	~~3491~~	~~3968~~	~~4438~~	~~4904~~	~~5363~~	~~5816~~	~~6264~~	~~6706~~	~~7141~~	~~7571~~	~~7994~~	~~8412~~	~~8823~~	~~9228~~	~~9663~~	~~10105~~	~~10538~~	~~10981~~	~~11410~~	~~11867~~
2250.6	~~516~~	1027	1532	2032	~~2526~~	~~3015~~	~~3498~~	~~3976~~	~~4448~~	~~4914~~	~~5375~~	~~5829~~	~~6278~~	~~6721~~	~~7158~~	~~7589~~	~~8013~~	~~8432~~	~~8844~~	~~9250~~	~~9687~~	~~10131~~	~~10565~~	~~11010~~	~~11440~~	~~11899~~
2250.7	~~517~~	1029	1535	2036	~~2531~~	~~3021~~	~~3506~~	~~3984~~	~~4458~~	~~4925~~	~~5387~~	~~5842~~	~~6292~~	~~6736~~	~~7174~~	~~7606~~	~~8032~~	~~8452~~	~~8866~~	~~9273~~	~~9712~~	~~10157~~	~~10592~~	~~11038~~	~~11470~~	~~11930~~
2250.8	~~518~~	1031	1538	2040	~~2537~~	~~3028~~	~~3513~~	~~3993~~	~~4467~~	~~4936~~	~~5398~~	~~5855~~	~~6306~~	~~6752~~	~~7191~~	~~7624~~	~~8051~~	~~8472~~	~~8887~~	~~9296~~	~~9736~~	~~10182~~	~~10619~~	~~11067~~	~~11500~~	~~11962~~
2250.9	~~519~~	1033	1541	2044	~~2542~~	~~3034~~	~~3520~~	~~4001~~	~~4477~~	~~4946~~	~~5410~~	~~5868~~	~~6320~~	~~6767~~	~~7207~~	~~7642~~	~~8070~~	~~8492~~	~~8908~~	~~9318~~	~~9760~~	~~10208~~	~~10646~~	~~11095~~	~~11530~~	~~11994~~
2251.0	~~520~~	1035	1544	2048	~~2547~~	~~3040~~	~~3528~~	~~4010~~	~~4486~~	~~4957~~	~~5422~~	~~5881~~	~~6335~~	~~6782~~	~~7224~~	~~7659~~	~~8089~~	~~8512~~	~~8930~~	~~9341~~	~~9784~~	~~10233~~	~~10672~~	~~11124~~	~~11560~~	~~12025~~
2251.1	~~521~~	~~1037~~	1547	2053	~~2552~~	~~3046~~	~~3535~~	~~4018~~	~~4496~~	~~4967~~	~~5434~~	~~5894~~	~~6349~~	~~6797~~	~~7240~~	~~7677~~	~~8108~~	~~8532~~	~~8951~~	~~9363~~	~~9807~~	~~10258~~	~~10699~~	~~11152~~	~~11590~~	~~12056~~
2251.2	~~522~~	~~1039~~	1550	2057	~~2557~~	~~3053~~	~~3542~~	~~4027~~	~~4505~~	~~4978~~	~~5445~~	~~5907~~	~~6363~~	~~6812~~	~~7256~~	~~7694~~	~~8126~~	~~8552~~	~~8972~~	~~9386~~	~~9831~~	~~10283~~	~~10726~~	~~11180~~	~~11619~~	~~12088~~
2251.3	~~523~~	~~1041~~	1554	2061	~~2562~~	~~3059~~	~~3550~~	~~4035~~	~~4515~~	~~4989~~	~~5457~~	~~5920~~	~~6377~~	~~6828~~	~~7273~~	~~7712~~	~~8145~~	~~8572~~	~~8993~~	~~9408~~	~~9855~~	~~10309~~	~~10752~~	~~11208~~	~~11649~~	~~12119~~
2251.4	~~524~~	~~1043~~	1557	2065	~~2568~~	~~3065~~	~~3557~~	~~4043~~	~~4524~~	~~4999~~	~~5469~~	~~5932~~	~~6390~~	~~6843~~	~~7289~~	~~7729~~	~~8164~~	~~8592~~	~~9014~~	~~9431~~	~~9879~~	~~10334~~	~~10779~~	~~11236~~	~~11678~~	~~12150~~
2251.5	~~525~~	~~1045~~	1560	2069	~~2573~~	~~3071~~	~~3564~~	~~4052~~	~~4533~~	~~5010~~	~~5480~~	~~5945~~	~~6404~~	~~6858~~	~~7305~~	~~7747~~	~~8182~~	~~8612~~	~~9035~~	~~9453~~	~~9902~~	~~10359~~	~~10805~~	~~11264~~	~~11708~~	~~12181~~
2251.6	~~526~~	~~1047~~	~~1563~~	2073	~~2578~~	~~3077~~	~~3571~~	~~4060~~	~~4543~~	~~5020~~	~~5492~~	~~5958~~	~~6418~~	~~6873~~	~~7321~~	~~7764~~	~~8201~~	~~8632~~	~~9056~~	~~9475~~	~~9926~~	~~10384~~	~~10832~~	~~11292~~	~~11737~~	~~12212~~
2251.7	~~527~~	~~1049~~	~~1566~~	2077	~~2583~~	~~3083~~	~~3579~~	~~4068~~	~~4552~~	~~5031~~	~~5503~~	~~5971~~	~~6432~~	~~6888~~	~~7338~~	~~7781~~	~~8219~~	~~8651~~	~~9077~~	~~9497~~	~~9949~~	~~10409~~	~~10858~~	~~11320~~	~~11766~~	~~12243~~
2251.8	~~528~~	~~1051~~	~~1569~~	2081	~~2588~~	~~3090~~	~~3586~~	~~4076~~	~~4562~~	~~5041~~	~~5515~~	~~5983~~	~~6446~~	~~6903~~	~~7354~~	~~7799~~	~~8238~~	~~8671~~	~~9098~~	~~9519~~	~~9973~~	~~10434~~	~~10884~~	~~11347~~	~~11796~~	~~12274~~
2251.9	~~529~~	~~1053~~	~~1572~~	2085	~~2593~~	~~3096~~	~~3593~~	~~4085~~	~~4571~~	~~5052~~	~~5527~~	~~5996~~	~~6460~~	~~6918~~	~~7370~~	~~7816~~	~~8256~~	~~8691~~	~~9119~~	~~9541~~	~~9996~~	~~10458~~	~~10910~~	~~11375~~	~~11825~~	~~12304~~
2252.0	~~530~~	~~1055~~	~~1575~~	2089	~~2598~~	~~3102~~	~~3600~~	~~4093~~	~~4580~~	~~5062~~	~~5538~~	~~6009~~	~~6473~~	~~6932~~	~~7386~~	~~7833~~	~~8275~~	~~8710~~	~~9140~~	~~9564~~	~~10020~~	~~10483~~	~~10937~~	~~11403~~	~~11854~~	~~12335~~
2252.1	~~531~~	~~1057~~	~~1578~~	~~2093~~	~~2603~~	~~3108~~	~~3607~~	~~4101~~	~~4589~~	~~5072~~	~~5550~~	~~6021~~	~~6487~~	~~6947~~	~~7402~~	~~7850~~	~~8293~~	~~8730~~	~~9161~~	~~9586~~	~~10043~~	~~10508~~	~~10963~~	~~11430~~	~~11883~~	~~12365~~
2252.2	~~532~~	~~1059~~	~~1581~~	~~2097~~	~~2608~~	~~3114~~	~~3614~~	~~4109~~	~~4599~~	~~5083~~	~~5561~~	~~6034~~	~~6501~~	~~6962~~	~~7418~~	~~7868~~	~~8311~~	~~8749~~	~~9181~~	~~9607~~	~~10066~~	~~10532~~	~~10989~~	~~11458~~	~~11912~~	~~12396~~
2252.3	~~533~~	~~1061~~	~~1584~~	~~2101~~	2613	3120	3622	4117	4608	5093	5572	6046	6514	6977	7434	7885	8330	8769	9202	9629	10090	10557	11015	11485	11940	12426
2252.4	~~534~~	~~1063~~	~~1587~~	~~2105~~	2618	3126	3629	4126	4617	5103	5584	6059	6528	6992	7450	7902	8348	8788	9223	9651	10113	10582	11041	11512	11969	12457
2252.5	~~535~~	~~1065~~	~~1590~~	~~2109~~	2623	3132	3636	4134	4626	5114	5595	6071	6542	7006	7465	7919	8366	8808	9243	9673	10136	10606	11066	11540	11998	12487
2252.6	~~536~~	~~1067~~	~~1593~~	~~2113~~	~~2628~~	3138	3643	4142	4636	5124	5607	6084	6555	7021	7481	7936	8384	8827	9264	9695	10159	10630	11092	11567	12027	12517
2252.7	~~537~~	~~1069~~	~~1596~~	~~2117~~	~~2633~~	3144	3650	4150	4645	5134	5618	6096	6569	7036	7497	7953	8402	8846	9284	9716	10182	10655	11118	11594	12055	12547
2252.8	~~538~~	~~1071~~	~~1599~~	~~2121~~	~~2638~~	3150	3657	4158	4654	5144	5629	6109	6582	7050	7513	7970	8420	8866	9305	9738	10205	10679	11144	11621	12084	12577
2252.9	~~539~~	~~1073~~	~~1602~~	~~2125~~	~~2643~~	3156	3664	4166	4663	5155	5641	6121	6596	7065	7529	7986	8439	8885	9325	9760	10228	10703	11169	11648	12112	12607
2253.0	~~540~~	~~1075~~	~~1605~~	~~2129~~	~~2648~~	3162	3671	4174	4672	5165	5652	6133	6609	7080	7544	8003	8457	8904	9345	9781	10250	10727	11195	11675	12141	12637
2253.1	~~541~~	~~1077~~	~~1607~~	~~2133~~	~~2653~~	~~3168~~	3678	4182	4681	5175	5663	6146	6623	7094	7560	8020	8474	8923	9366	9803	10273	10752	11220	11702	12169	12667
2253.2	~~542~~	~~1079~~	~~1610~~	~~2137~~	~~2658~~	~~3174~~	3685	4190	4691	5185	5674	6158	6636	7109	7576	8037	8492	8942	9386	9824	10296	10776	11246	11729	12197	12697
2253.3	~~543~~	~~1081~~	~~1613~~	~~2141~~	~~2663~~	~~3180~~	3692	4198	4700	5195	5686	6170	6650	7123	7591	8054	8510	8961	9406	9845	10319	10800	11271	11756	12225	12727
2253.4	~~544~~	~~1083~~	~~1616~~	~~2145~~	~~2668~~	~~3186~~	3699	4207	4709	5205	5697	6183	6663	7138	7607	8070	8528	8980	9426	9867	10341	10824	11296	11782	12253	12756
2253.5	~~545~~	~~1085~~	~~1619~~	~~2149~~	~~2673~~	~~3192~~	3706	4214	4718	5216	5708	6195	6676	7152	7622	8087	8546	8999	9447	9888	10364	10848	11322	11809	12281	12786
2253.6	~~546~~	~~1087~~	~~1622~~	~~2153~~	~~2678~~	~~3198~~	~~3713~~	4222	4727	5226	5719	6207	6690	7167	7638	8104	8564	9018	9467	9909	10386	10871	11347	11836	12309	12815
2253.7	~~547~~	~~1088~~	~~1625~~	~~2157~~	~~2683~~	~~3204~~	~~3720~~	4230	4736	5236	5730	6219	6703	7181	7653	8120	8581	9037	9487	9931	10409	10895	11372	11862	12337	12845
2253.8	~~548~~	~~1090~~	~~1628~~	~~2160~~	~~2688~~	~~3210~~	~~3727~~	4238	4745	5246	5741	6231	6716	7195	7669	8137	8599	9056	9507	9952	10431	10919	11397	11889	12365	12874
2253.9	~~549~~	~~1092~~	~~1631~~	~~2164~~	~~2693~~	~~3216~~	~~3734~~	4246	4754	5256	5752	6244	6729	7210	7684	8153	8617	9075	9527	9973	10454	10943	11422	11915	12393	12903
2254.0	~~550~~	~~1094~~	~~1634~~	~~2168~~	~~2698~~	~~3222~~	~~3741~~	4254	4763	5266	5763	6256	6743	7224	7700	8170	8634	9093	9547	9994	10476	10966	11447	11941	12421	12932
2254.1	~~551~~	~~1096~~	~~1637~~	~~2172~~	~~2702~~	~~3228~~	~~3747~~	~~4262~~	4772	5276	5774	6268	6756	7238	7715	8186	8652	9112	9566	10015	10498	10990	11472	11968	12448	12962
2254.2	~~552~~	~~1098~~	~~1640~~	~~2176~~	~~2707~~	~~3233~~	~~3754~~	~~4270~~	4781	5286	5785	6280	6769	7252	7730	8203	8670	9131	9586	10036	10521	11014	11497	11994	12476	12991
2254.3	~~552~~	~~1100~~	~~1642~~	~~2180~~	~~2712~~	~~3239~~	~~3761~~	~~4278~~	4789	5296	5796	6292	6782	7267	7746	8219	8687	9149	9606	10057	10543	11037	11522	12020	12504	13020
2254.4	~~553~~	~~1102~~	~~1645~~	~~2184~~	~~2717~~	~~3245~~	~~3768~~	~~4286~~	4798	5306	5807	6304	6795	7281	7761	8236	8705	9168	9626	10078	10565	11060	11546	12046	12531	13049
2254.5	~~554~~	~~1104~~	~~1648~~	~~2188~~	~~2722~~	~~3251~~	~~3775~~	~~4294~~	4807	5315	5818	6316	6808	7295	7776	8252	8722	9187	9646	10099	10587	11084	11571	12072	12558	13078
2254.6	~~555~~	~~1106~~	~~1651~~	~~2191~~	~~2727~~	~~3257~~	~~3782~~	~~4301~~	~~4816~~	5325	5829	6328	6821	7309	7791	8268	8740	9205	9665	10120	10609	11107	11596	12098	12586	13106
2254.7	~~556~~	~~1108~~	~~1654~~	~~2195~~	~~2731~~	~~3263~~	~~3788~~	~~4309~~	~~4825~~	5335	5840	6340	6834	7323	7807	8285	8757	9224	9685	10140	10631	11131	11620	12124	12613	13135
2254.8	~~557~~	~~1110~~	~~1657~~	~~2199~~	~~2736~~	~~3268~~	~~3795~~	~~4317~~	~~4834~~	5345	5851	6352	6847	7337	7822	8301	8774	9242	9704	10161	10653	11154	11645	12150	12640	13164
2254.9	~~558~~	~~1111~~	~~1660~~	~~2203~~	~~2741~~	~~3274~~	~~3802~~	~~4325~~	~~4843~~	5355	5862	6364	6860	7351	7837	8317	8792	9261	9724	10182	10675	11177	11669	12176	12668	13193

FORT PECK DAM SPILLWAY RATING TABLE
DISCHARGE IN CFS **(ONE BAY)**

~~628~~ Indicates Pool Elevation is greater than Top of Gate Elevation
1145 Indicates discharge is in the unstable range between weir and orifice flow

GATE LIP ELEV.	2225.50	2226.00	2226.50	2227.00	2227.50	2228.00	2228.50	2229.00	2229.50	2230.00	2230.50	2231.00	2231.50	2232.00	2232.50	2233.00	2233.50	2234.00	2234.50	2235.00	2235.50	2236.00	2236.50	2237.00	2237.50	2238.00
POOL ELEV.	GATE DIAL INDICATOR OPENING IN FEET																									
	0.5	1.0	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0	6.5	7.0	7.5	8.0	8.5	9.0	9.5	10.0	10.5	11.0	11.5	12.0	12.5	13.0
2255.0	~~559~~	~~1113~~	~~1663~~	~~2207~~	~~2746~~	~~3280~~	~~3809~~	~~4333~~	~~4851~~	5365	5873	6376	6873	7365	7852	8333	8809	9279	9744	10202	10697	11200	11694	12202	12695	13221
2255.1	~~560~~	~~1115~~	~~1665~~	~~2211~~	~~2751~~	~~3286~~	~~3816~~	~~4340~~	~~4860~~	~~5375~~	5884	6388	6886	7379	7867	8349	8826	9297	9763	10223	10719	11223	11718	12227	12722	13250
2255.2	~~561~~	~~1117~~	~~1668~~	~~2214~~	~~2755~~	~~3291~~	~~3822~~	~~4348~~	~~4869~~	~~5384~~	5894	6399	6899	7393	7882	8365	8843	9316	9782	10244	10741	11246	11743	12253	12749	13278
2255.3	~~562~~	~~1119~~	~~1671~~	~~2218~~	~~2760~~	~~3297~~	~~3829~~	~~4356~~	~~4878~~	~~5394~~	5905	6411	6912	7407	7897	8381	8860	9334	9802	10264	10762	11269	11767	12279	12776	13306
2255.4	~~563~~	~~1121~~	~~1674~~	~~2222~~	~~2765~~	~~3303~~	~~3836~~	~~4364~~	~~4886~~	~~5404~~	5916	6423	6925	7421	7912	8398	8878	9352	9821	10285	10784	11292	11791	12304	12803	13335
2255.5	~~564~~	~~1123~~	~~1677~~	~~2226~~	~~2770~~	~~3309~~	~~3843~~	~~4371~~	~~4895~~	~~5414~~	5927	6435	6938	7435	7927	8414	8895	9370	9841	10305	10806	11315	11815	12330	12830	13363
2255.6	~~565~~	~~1125~~	~~1680~~	~~2229~~	~~2774~~	~~3314~~	~~3849~~	~~4379~~	~~4904~~	~~5423~~	~~5938~~	6447	6950	7449	7942	8430	8912	9389	9860	10325	10827	11338	11839	12355	12856	13391
2255.7	~~566~~	~~1126~~	~~1682~~	~~2233~~	~~2779~~	~~3320~~	~~3856~~	~~4387~~	~~4912~~	~~5433~~	~~5948~~	6458	6963	7463	7957	8446	8929	9407	9879	10346	10849	11361	11864	12381	12883	13419
2255.8	~~567~~	~~1128~~	~~1685~~	~~2237~~	~~2784~~	~~3326~~	~~3863~~	~~4394~~	~~4921~~	~~5443~~	~~5959~~	6470	6976	7476	7972	8461	8946	9425	9898	10366	10871	11384	11888	12406	12910	13448
2255.9	~~568~~	~~1130~~	~~1688~~	~~2241~~	~~2789~~	~~3332~~	~~3869~~	~~4402~~	~~4930~~	~~5452~~	~~5970~~	6482	6989	7490	7986	8477	8963	9443	9917	10386	10892	11407	11912	12431	12936	13476
2256.0	~~568~~	~~1132~~	~~1691~~	~~2245~~	~~2793~~	~~3337~~	~~3876~~	~~4410~~	~~4938~~	~~5462~~	~~5980~~	6493	7001	7504	8001	8493	8980	9461	9937	10407	10913	11429	11936	12457	12963	13504
2256.1	~~569~~	~~1134~~	~~1694~~	~~2248~~	~~2798~~	~~3343~~	~~3883~~	~~4417~~	~~4947~~	~~5472~~	~~5991~~	~~6505~~	7014	7518	8016	8509	8997	9479	9956	10427	10935	11452	11959	12482	12989	13531
2256.2	~~570~~	~~1136~~	~~1696~~	~~2252~~	~~2803~~	~~3349~~	~~3889~~	~~4425~~	~~4956~~	~~5481~~	~~6002~~	~~6517~~	7027	7531	8031	8525	9014	9497	9975	10447	10956	11474	11983	12507	13016	13559
2256.3	~~571~~	~~1138~~	~~1699~~	~~2256~~	~~2807~~	~~3354~~	~~3896~~	~~4433~~	~~4964~~	~~5491~~	~~6012~~	~~6528~~	7039	7545	8046	8541	9030	9515	9994	10467	10978	11497	12007	12532	13042	13587
2256.4	~~572~~	~~1139~~	~~1702~~	~~2259~~	~~2812~~	~~3360~~	~~3903~~	~~4440~~	~~4973~~	~~5500~~	~~6023~~	~~6540~~	7052	7559	8060	8556	9047	9533	10013	10487	10999	11520	12031	12557	13069	13615
2256.5	~~573~~	~~1141~~	~~1705~~	~~2263~~	~~2817~~	~~3365~~	~~3909~~	~~4448~~	~~4981~~	~~5510~~	~~6033~~	~~6552~~	7065	7572	8075	8572	9064	9551	10032	10507	11020	11542	12055	12582	13095	13643
2256.6	~~574~~	~~1143~~	~~1707~~	~~2267~~	~~2821~~	~~3371~~	~~3916~~	~~4455~~	~~4990~~	~~5519~~	~~6044~~	~~6563~~	~~7077~~	7586	8090	8588	9081	9568	10051	10527	11041	11564	12078	12607	13121	13670
2256.7	~~575~~	~~1145~~	~~1710~~	~~2271~~	~~2826~~	~~3377~~	~~3922~~	~~4463~~	~~4998~~	~~5529~~	~~6054~~	~~6575~~	~~7090~~	7600	8104	8604	9098	9586	10069	10547	11062	11587	12102	12632	13147	13698
2256.8	~~576~~	~~1147~~	~~1713~~	~~2274~~	~~2831~~	~~3382~~	~~3928~~	~~4470~~	~~5007~~	~~5538~~	~~6065~~	~~6586~~	~~7102~~	7613	8119	8619	9114	9604	10088	10567	11084	11609	12125	12657	13174	13725
2256.9	~~577~~	~~1149~~	~~1716~~	~~2278~~	~~2835~~	~~3388~~	~~3935~~	~~4478~~	~~5015~~	~~5548~~	~~6075~~	~~6598~~	~~7115~~	7627	8133	8635	9131	9622	10107	10587	11105	11631	12149	12682	13200	13753
2257.0	~~578~~	~~1150~~	~~1719~~	~~2282~~	~~2840~~	~~3393~~	~~3942~~	~~4485~~	~~5024~~	~~5557~~	~~6086~~	~~6609~~	~~7127~~	7640	8148	8650	9148	9639	10126	10607	11126	11654	12172	12707	13226	13780
2257.1	~~579~~	~~1152~~	~~1721~~	~~2285~~	~~2845~~	~~3399~~	~~3948~~	~~4493~~	~~5032~~	~~5567~~	~~6096~~	~~6621~~	~~7140~~	~~7654~~	8162	8666	9164	9657	10145	10627	11147	11676	12196	12731	13252	13808
2257.2	~~579~~	~~1154~~	~~1724~~	~~2289~~	~~2849~~	~~3405~~	~~3955~~	~~4500~~	~~5041~~	~~5576~~	~~6107~~	~~6632~~	~~7152~~	~~7667~~	8177	8681	9181	9675	10163	10647	11168	11698	12219	12756	13278	13835
2257.3	~~580~~	~~1156~~	~~1727~~	~~2293~~	~~2854~~	~~3410~~	~~3962~~	~~4508~~	~~5049~~	~~5586~~	~~6117~~	~~6643~~	~~7165~~	~~7681~~	8191	8697	9197	9692	10182	10666	11189	11720	12243	12781	13304	13862
2257.4	~~581~~	~~1158~~	~~1730~~	~~2296~~	~~2859~~	~~3416~~	~~3968~~	~~4515~~	~~5058~~	~~5595~~	~~6128~~	~~6655~~	~~7177~~	~~7694~~	8206	8712	9214	9710	10201	10686	11209	11742	12266	12805	13329	13889
2257.5	~~582~~	~~1160~~	~~1732~~	~~2300~~	~~2863~~	~~3421~~	~~3975~~	~~4523~~	~~5066~~	~~5605~~	~~6138~~	~~6666~~	~~7189~~	~~7707~~	8220	8728	9230	9727	10219	10706	11230	11764	12289	12830	13355	13917
2257.6	~~583~~	~~1161~~	~~1735~~	~~2304~~	~~2868~~	~~3427~~	~~3981~~	~~4530~~	~~5075~~	~~5614~~	~~6148~~	~~6678~~	~~7202~~	~~7721~~	~~8235~~	8743	9247	9745	10238	10725	11251	11786	12312	12854	13381	13944
2257.7	~~584~~	~~1163~~	~~1738~~	~~2307~~	~~2872~~	~~3432~~	~~3987~~	~~4538~~	~~5083~~	~~5623~~	~~6159~~	~~6689~~	~~7214~~	~~7734~~	~~8249~~	8759	9263	9762	10256	10745	11272	11808	12336	12879	13407	13971
2257.8	~~585~~	~~1165~~	~~1740~~	~~2311~~	~~2877~~	~~3438~~	~~3994~~	~~4545~~	~~5091~~	~~5633~~	~~6169~~	~~6700~~	~~7226~~	~~7747~~	~~8263~~	8774	9280	9780	10275	10765	11293	11830	12359	12903	13432	13998
2257.9	~~586~~	~~1167~~	~~1743~~	~~2315~~	~~2881~~	~~3443~~	~~4000~~	~~4553~~	~~5100~~	~~5642~~	~~6179~~	~~6711~~	~~7239~~	~~7761~~	~~8278~~	8789	9296	9797	10293	10784	11313	11852	12382	12927	13458	14025
2258.0	~~587~~	~~1169~~	~~1746~~	~~2318~~	~~2886~~	~~3449~~	~~4007~~	~~4560~~	~~5108~~	~~5651~~	~~6190~~	~~6723~~	~~7251~~	~~7774~~	~~8292~~	8805	9312	9815	10312	10804	11334	11874	12405	12952	13483	14051
2258.1	~~588~~	~~1170~~	~~1749~~	~~2322~~	~~2891~~	~~3454~~	~~4013~~	~~4567~~	~~5116~~	~~5661~~	~~6200~~	~~6734~~	~~7263~~	~~7787~~	~~8306~~	~~8820~~	9329	9832	10330	10823	11355	11896	12428	12976	13509	14078
2258.2	~~588~~	~~1172~~	~~1751~~	~~2326~~	~~2895~~	~~3460~~	~~4020~~	~~4575~~	~~5125~~	~~5670~~	~~6210~~	~~6745~~	~~7275~~	~~7800~~	~~8320~~	~~8835~~	9345	9849	10349	10842	11375	11918	12451	13000	13534	14105
2258.3	~~589~~	~~1174~~	~~1754~~	~~2329~~	~~2900~~	~~3465~~	~~4026~~	~~4582~~	~~5133~~	~~5679~~	~~6220~~	~~6756~~	~~7288~~	~~7814~~	~~8335~~	~~8851~~	9361	9867	10367	10862	11396	11939	12474	13024	13560	14132
2258.4	~~590~~	~~1176~~	~~1757~~	~~2333~~	~~2904~~	~~3471~~	~~4032~~	~~4589~~	~~5141~~	~~5688~~	~~6231~~	~~6768~~	~~7300~~	~~7827~~	~~8349~~	~~8866~~	9377	9884	10385	10881	11416	11961	12497	13048	13585	14159
2258.5	~~591~~	~~1178~~	~~1759~~	~~2336~~	~~2909~~	~~3476~~	~~4039~~	~~4597~~	~~5150~~	~~5698~~	~~6241~~	~~6779~~	~~7312~~	~~7840~~	~~8363~~	~~8881~~	9394	9901	10404	10901	11437	11983	12519	13072	13610	14185
2258.6	~~592~~	~~1179~~	~~1762~~	~~2340~~	~~2913~~	~~3482~~	~~4045~~	~~4604~~	~~5158~~	~~5707~~	~~6251~~	~~6790~~	~~7324~~	~~7853~~	~~8377~~	~~8896~~	~~9410~~	9918	10422	10920	11457	12004	12542	13096	13636	14212
2258.7	~~593~~	~~1181~~	~~1765~~	~~2344~~	~~2918~~	~~3487~~	~~4052~~	~~4611~~	~~5166~~	~~5716~~	~~6261~~	~~6801~~	~~7336~~	~~7866~~	~~8391~~	~~8911~~	~~9426~~	9936	10440	10939	11477	12026	12565	13120	13661	14238
2258.8	~~594~~	~~1183~~	~~1767~~	~~2347~~	~~2922~~	~~3493~~	~~4058~~	~~4619~~	~~5174~~	~~5725~~	~~6271~~	~~6812~~	~~7348~~	~~7879~~	~~8405~~	~~8926~~	~~9442~~	9953	10458	10958	11498	12047	12588	13144	13686	14265
2258.9	~~595~~	~~1185~~	~~1770~~	~~2351~~	~~2927~~	~~3498~~	~~4064~~	~~4626~~	~~5183~~	~~5734~~	~~6281~~	~~6823~~	~~7360~~	~~7892~~	~~8419~~	~~8941~~	~~9458~~	9970	10476	10978	11518	12069	12610	13168	13711	14291
2259.0	~~596~~	~~1187~~	~~1773~~	~~2354~~	~~2931~~	~~3503~~	~~4071~~	~~4633~~	~~5191~~	~~5744~~	~~6292~~	~~6835~~	~~7373~~	~~7906~~	~~8434~~	~~8956~~	~~9474~~	9987	10494	10997	11538	12090	12633	13192	13736	14318
2259.1	~~596~~	~~1188~~	~~1775~~	~~2358~~	~~2936~~	~~3509~~	~~4077~~	~~4640~~	~~5199~~	~~5753~~	~~6302~~	~~6846~~	~~7385~~	~~7919~~	~~8448~~	~~8971~~	~~9490~~	~~10004~~	10512	11016	11559	12112	12656	13216	13761	14344
2259.2	~~597~~	~~1190~~	~~1778~~	~~2362~~	~~2940~~	~~3514~~	~~4083~~	~~4648~~	~~5207~~	~~5762~~	~~6312~~	~~6857~~	~~7397~~	~~7932~~	~~8462~~	~~8986~~	~~9506~~	~~10021~~	10531	11035	11579	12133	12678	13240	13786	14370
2259.3	~~598~~	~~1192~~	~~1781~~	~~2365~~	~~2945~~	~~3520~~	~~4090~~	~~4655~~	~~5215~~	~~5771~~	~~6322~~	~~6868~~	~~7409~~	~~7945~~	~~8476~~	~~9001~~	~~9522~~	~~10038~~	10549	11054	11599	12154	12701	13263	13811	14396
2259.4	~~599~~	~~1194~~	~~1783~~	~~2369~~	~~2949~~	~~3525~~	~~4096~~	~~4662~~	~~5224~~	~~5780~~	~~6332~~	~~6879~~	~~7421~~	~~7958~~	~~8489~~	~~9016~~	~~9538~~	~~10055~~	10567	11073	11619	12176	12723	13287	13836	14423
2259.5	~~600~~	~~1195~~	~~1786~~	~~2372~~	~~2954~~	~~3530~~	~~4102~~	~~4669~~	~~5232~~	~~5789~~	~~6342~~	~~6890~~	~~7433~~	~~7970~~	~~8503~~	~~9031~~	~~9554~~	~~10072~~	10585	11092	11639	12197	12745	13311	13861	14449
2259.6	~~601~~	~~1197~~	~~1789~~	~~2376~~	~~2958~~	~~3536~~	~~4108~~	~~4677~~	~~5240~~	~~5798~~	~~6352~~	~~6901~~	~~7445~~	~~7983~~	~~8517~~	~~9046~~	~~9570~~	~~10089~~	~~10602~~	11111	11659	12218	12768	13334	13886	14475
2259.7	~~602~~	~~1199~~	~~1791~~	~~2379~~	~~2962~~	~~3541~~	~~4115~~	~~4684~~	~~5248~~	~~5807~~	~~6362~~	~~6912~~	~~7456~~	~~7996~~	~~8531~~	~~9061~~	~~9586~~	~~10106~~	~~10620~~	11130	11679	12239	12790	13358	13911	14501
2259.8	~~603~~	~~1201~~	~~1794~~	~~2383~~	~~2967~~	~~3546~~	~~4121~~	~~4691~~	~~5256~~	~~5816~~	~~6372~~	~~6923~~	~~7468~~	~~8009~~	~~8545~~	~~9076~~	~~9602~~	~~10123~~	~~10638~~	11149	11699	12261	12813	13381	13935	14527
2259.9	~~603~~	~~1202~~	~~1797~~	~~2386~~	~~2971~~	~~3552~~	~~4127~~	~~4698~~	~~5264~~	~~5826~~	~~6382~~	~~6934~~	~~7480~~	~~8022~~	~~8559~~	~~9091~~	~~9618~~	~~10139~~	~~10656~~	11168	11719	12282	12835	13405	13960	14553

FORT PECK DAM SPILLWAY RATING TABLE
DISCHARGE IN CFS **(ONE BAY)**

~~629~~ Indicates Pool Elevation is greater than Top of Gate Elevation
1145 Indicates discharge is in the unstable range between weir and orifice flow

GATE LIP ELEV.	2225.50	2226.00	2226.50	2227.00	2227.50	2228.00	2228.50	2229.00	2229.50	2230.00	2230.50	2231.00	2231.50	2232.00	2232.50	2233.00	2233.50	2234.00	2234.50	2235.00	2235.50	2236.00	2236.50	2237.00	2237.50	2238.00
POOL	GATE DIAL INDICATOR OPENING IN FEET																				GATE DIAL INDICATOR OPENING IN FEET					
ELEV.	0.5	1.0	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0	6.5	7.0	7.5	8.0	8.5	9.0	9.5	10.0	10.5	11.0	11.5	12.0	12.5	13.0
2260.0	~~604~~	~~1204~~	~~1799~~	~~2390~~	~~2976~~	~~3557~~	~~4134~~	~~4705~~	~~5272~~	~~5835~~	~~6392~~	~~6945~~	~~7492~~	~~8035~~	~~8573~~	~~9106~~	~~9633~~	~~10156~~	~~10674~~	11186	11739	12303	12857	13428	13985	14579
2260.1	~~605~~	~~1206~~	~~1802~~	~~2393~~	~~2980~~	~~3562~~	~~4140~~	~~4712~~	~~5280~~	~~5844~~	~~6402~~	~~6955~~	~~7504~~	~~8048~~	~~8587~~	~~9120~~	~~9649~~	~~10173~~	~~10692~~	~~11205~~	11759	12324	12879	13452	14009	14605
2260.2	~~606~~	~~1208~~	~~1805~~	~~2397~~	~~2985~~	~~3568~~	~~4146~~	~~4720~~	~~5288~~	~~5853~~	~~6412~~	~~6966~~	~~7516~~	~~8061~~	~~8600~~	~~9135~~	~~9665~~	~~10190~~	~~10709~~	~~11224~~	11779	12345	12901	13475	14034	14631
2260.3	~~607~~	~~1209~~	~~1807~~	~~2400~~	~~2989~~	~~3573~~	~~4152~~	~~4727~~	~~5297~~	~~5862~~	~~6422~~	~~6977~~	~~7528~~	~~8073~~	~~8614~~	~~9150~~	~~9681~~	~~10206~~	~~10727~~	~~11243~~	11799	12366	12923	13498	14058	14656
2260.4	~~608~~	~~1211~~	~~1810~~	~~2404~~	~~2993~~	~~3578~~	~~4158~~	~~4734~~	~~5305~~	~~5871~~	~~6432~~	~~6988~~	~~7540~~	~~8086~~	~~8628~~	~~9165~~	~~9696~~	~~10223~~	~~10745~~	~~11261~~	11819	12387	12946	13522	14083	14682
2260.5	~~609~~	~~1213~~	~~1812~~	~~2407~~	~~2998~~	~~3584~~	~~4165~~	~~4741~~	~~5313~~	~~5879~~	~~6442~~	~~6999~~	~~7551~~	~~8099~~	~~8642~~	~~9179~~	~~9712~~	~~10240~~	~~10762~~	~~11280~~	11839	12408	12968	13545	14107	14708
2260.6	~~610~~	~~1215~~	~~1815~~	~~2411~~	~~3002~~	~~3589~~	~~4171~~	~~4748~~	~~5321~~	~~5888~~	~~6451~~	~~7010~~	~~7563~~	~~8112~~	~~8655~~	~~9194~~	~~9728~~	~~10256~~	~~10780~~	~~11299~~	~~11858~~	12429	12990	13568	14131	14733
2260.7	~~610~~	~~1216~~	~~1818~~	~~2414~~	~~3007~~	~~3594~~	~~4177~~	~~4755~~	~~5329~~	~~5897~~	~~6461~~	~~7020~~	~~7575~~	~~8124~~	~~8669~~	~~9209~~	~~9743~~	~~10273~~	~~10798~~	~~11317~~	~~11878~~	12449	13012	13591	14156	14759
2260.8	~~611~~	~~1218~~	~~1820~~	~~2418~~	~~3011~~	~~3599~~	~~4183~~	~~4762~~	~~5337~~	~~5906~~	~~6471~~	~~7031~~	~~7587~~	~~8137~~	~~8683~~	~~9223~~	~~9759~~	~~10290~~	~~10815~~	~~11336~~	~~11898~~	12470	13034	13614	14180	14784
2260.9	~~612~~	~~1220~~	~~1823~~	~~2421~~	~~3015~~	~~3605~~	~~4189~~	~~4769~~	~~5345~~	~~5915~~	~~6481~~	~~7042~~	~~7598~~	~~8150~~	~~8696~~	~~9238~~	~~9774~~	~~10306~~	~~10833~~	~~11355~~	~~11917~~	12491	13055	13637	14204	14810

FORT PECK DAM SPILLWAY RATING TABLE
DISCHARGE IN CFS **(ONE BAY)**

~~629~~ Indicates Pool Elevation is greater than Top of Gate Elevation
~~1145~~ Indicates discharge is in the unstable range between weir and orifice flow

GATE LIP ELEV.	2238.50	2239.00	2239.50	2240.00	2240.50	2241.00	2241.50	2242.00	2242.50	2243.00	2243.50	2244.00	2244.50	2245.00	2245.50	2246.00	2246.50	2247.00	2247.50	2248.00	2248.50	2249.00	2249.50	2250.00
POOL ELEV.	GATE DIAL INDICATOR OPENING IN FEET																							
	13.5	14.0	14.5	15.0	15.5	16.0	16.5	17.0	17.5	18.0	18.5	19.0	19.5	20.0	20.5	21.0	21.5	22.0	22.5	23.0	23.5	24.0	24.5	25.0
2225.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2225.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2225.2	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
2225.3	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
2225.4	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
2225.5	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28
2225.6	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39
2225.7	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50
2225.8	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62
2225.9	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75
2226.0	89	89	89	89	89	89	89	89	89	89	89	89	89	89	89	89	89	89	89	89	89	89	89	89
2226.1	104	104	104	104	104	104	104	104	104	104	104	104	104	104	104	104	104	104	104	104	104	104	104	104
2226.2	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120
2226.3	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136	136
2226.4	154	154	154	154	154	154	154	154	154	154	154	154	154	154	154	154	154	154	154	154	154	154	154	154
2226.5	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172
2226.6	190	190	190	190	190	190	190	190	190	190	190	190	190	190	190	190	190	190	190	190	190	190	190	190
2226.7	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210	210
2226.8	230	230	230	230	230	230	230	230	230	230	230	230	230	230	230	230	230	230	230	230	230	230	230	230
2226.9	251	251	251	251	251	251	251	251	251	251	251	251	251	251	251	251	251	251	251	251	251	251	251	251
2227.0	272	272	272	272	272	272	272	272	272	272	272	272	272	272	272	272	272	272	272	272	272	272	272	272
2227.1	294	294	294	294	294	294	294	294	294	294	294	294	294	294	294	294	294	294	294	294	294	294	294	294
2227.2	317	317	317	317	317	317	317	317	317	317	317	317	317	317	317	317	317	317	317	317	317	317	317	317
2227.3	341	341	341	341	341	341	341	341	341	341	341	341	341	341	341	341	341	341	341	341	341	341	341	341
2227.4	365	365	365	365	365	365	365	365	365	365	365	365	365	365	365	365	365	365	365	365	365	365	365	365
2227.5	389	389	389	389	389	389	389	389	389	389	389	389	389	389	389	389	389	389	389	389	389	389	389	389
2227.6	414	414	414	414	414	414	414	414	414	414	414	414	414	414	414	414	414	414	414	414	414	414	414	414
2227.7	440	440	440	440	440	440	440	440	440	440	440	440	440	440	440	440	440	440	440	440	440	440	440	440
2227.8	466	466	466	466	466	466	466	466	466	466	466	466	466	466	466	466	466	466	466	466	466	466	466	466
2227.9	493	493	493	493	493	493	493	493	493	493	493	493	493	493	493	493	493	493	493	493	493	493	493	493
2228.0	520	520	520	520	520	520	520	520	520	520	520	520	520	520	520	520	520	520	520	520	520	520	520	520
2228.1	548	548	548	548	548	548	548	548	548	548	548	548	548	548	548	548	548	548	548	548	548	548	548	548
2228.2	576	576	576	576	576	576	576	576	576	576	576	576	576	576	576	576	576	576	576	576	576	576	576	576
2228.3	605	605	605	605	605	605	605	605	605	605	605	605	605	605	605	605	605	605	605	605	605	605	605	605
2228.4	635	635	635	635	635	635	635	635	635	635	635	635	635	635	635	635	635	635	635	635	635	635	635	635
2228.5	665	665	665	665	665	665	665	665	665	665	665	665	665	665	665	665	665	665	665	665	665	665	665	665
2228.6	695	695	695	695	695	695	695	695	695	695	695	695	695	695	695	695	695	695	695	695	695	695	695	695
2228.7	726	726	726	726	726	726	726	726	726	726	726	726	726	726	726	726	726	726	726	726	726	726	726	726
2228.8	758	758	758	758	758	758	758	758	758	758	758	758	758	758	758	758	758	758	758	758	758	758	758	758
2228.9	789	789	789	789	789	789	789	789	789	789	789	789	789	789	789	789	789	789	789	789	789	789	789	789
2229.0	822	822	822	822	822	822	822	822	822	822	822	822	822	822	822	822	822	822	822	822	822	822	822	822
2229.1	855	855	855	855	855	855	855	855	855	855	855	855	855	855	855	855	855	855	855	855	855	855	855	855
2229.2	888	888	888	888	888	888	888	888	888	888	888	888	888	888	888	888	888	888	888	888	888	888	888	888
2229.3	922	922	922	922	922	922	922	922	922	922	922	922	922	922	922	922	922	922	922	922	922	922	922	922
2229.4	956	956	956	956	956	956	956	956	956	956	956	956	956	956	956	956	956	956	956	956	956	956	956	956
2229.5	991	991	991	991	991	991	991	991	991	991	991	991	991	991	991	991	991	991	991	991	991	991	991	991
2229.6	1026	1026	1026	1026	1026	1026	1026	1026	1026	1026	1026	1026	1026	1026	1026	1026	1026	1026	1026	1026	1026	1026	1026	1026
2229.7	1062	1062	1062	1062	1062	1062	1062	1062	1062	1062	1062	1062	1062	1062	1062	1062	1062	1062	1062	1062	1062	1062	1062	1062
2229.8	1098	1098	1098	1098	1098	1098	1098	1098	1098	1098	1098	1098	1098	1098	1098	1098	1098	1098	1098	1098	1098	1098	1098	1098
2229.9	1134	1134	1134	1134	1134	1134	1134	1134	1134	1134	1134	1134	1134	1134	1134	1134	1134	1134	1134	1134	1134	1134	1134	1134

FORT PECK DAM SPILLWAY RATING TABLE
DISCHARGE IN CFS **(ONE BAY)**

~~629~~ Indicates Pool Elevation is greater than Top of Gate Elevation
1145 Indicates discharge is in the unstable range between weir and orifice flow

GATE LIP ELEV.	2238.50	2239.00	2239.50	2240.00	2240.50	2241.00	2241.50	2242.00	2242.50	2243.00	2243.50	2244.00	2244.50	2245.00	2245.50	2246.00	2246.50	2247.00	2247.50	2248.00	2248.50	2249.00	2249.50	2250.00
POOL ELEV.	GATE DIAL INDICATOR OPENING IN FEET																							
	13.5	14.0	14.5	15.0	15.5	16.0	16.5	17.0	17.5	18.0	18.5	19.0	19.5	20.0	20.5	21.0	21.5	22.0	22.5	23.0	23.5	24.0	24.5	25.0
2230.0	1171	1171	1171	1171	1171	1171	1171	1171	1171	1171	1171	1171	1171	1171	1171	1171	1171	1171	1171	1171	1171	1171	1171	1171
2230.1	1208	1208	1208	1208	1208	1208	1208	1208	1208	1208	1208	1208	1208	1208	1208	1208	1208	1208	1208	1208	1208	1208	1208	1208
2230.2	1246	1246	1246	1246	1246	1246	1246	1246	1246	1246	1246	1246	1246	1246	1246	1246	1246	1246	1246	1246	1246	1246	1246	1246
2230.3	1284	1284	1284	1284	1284	1284	1284	1284	1284	1284	1284	1284	1284	1284	1284	1284	1284	1284	1284	1284	1284	1284	1284	1284
2230.4	1323	1323	1323	1323	1323	1323	1323	1323	1323	1323	1323	1323	1323	1323	1323	1323	1323	1323	1323	1323	1323	1323	1323	1323
2230.5	1362	1362	1362	1362	1362	1362	1362	1362	1362	1362	1362	1362	1362	1362	1362	1362	1362	1362	1362	1362	1362	1362	1362	1362
2230.6	1401	1401	1401	1401	1401	1401	1401	1401	1401	1401	1401	1401	1401	1401	1401	1401	1401	1401	1401	1401	1401	1401	1401	1401
2230.7	1441	1441	1441	1441	1441	1441	1441	1441	1441	1441	1441	1441	1441	1441	1441	1441	1441	1441	1441	1441	1441	1441	1441	1441
2230.8	1481	1481	1481	1481	1481	1481	1481	1481	1481	1481	1481	1481	1481	1481	1481	1481	1481	1481	1481	1481	1481	1481	1481	1481
2230.9	1522	1522	1522	1522	1522	1522	1522	1522	1522	1522	1522	1522	1522	1522	1522	1522	1522	1522	1522	1522	1522	1522	1522	1522
2231.0	1563	1563	1563	1563	1563	1563	1563	1563	1563	1563	1563	1563	1563	1563	1563	1563	1563	1563	1563	1563	1563	1563	1563	1563
2231.1	1605	1605	1605	1605	1605	1605	1605	1605	1605	1605	1605	1605	1605	1605	1605	1605	1605	1605	1605	1605	1605	1605	1605	1605
2231.2	1646	1646	1646	1646	1646	1646	1646	1646	1646	1646	1646	1646	1646	1646	1646	1646	1646	1646	1646	1646	1646	1646	1646	1646
2231.3	1689	1689	1689	1689	1689	1689	1689	1689	1689	1689	1689	1689	1689	1689	1689	1689	1689	1689	1689	1689	1689	1689	1689	1689
2231.4	1731	1731	1731	1731	1731	1731	1731	1731	1731	1731	1731	1731	1731	1731	1731	1731	1731	1731	1731	1731	1731	1731	1731	1731
2231.5	1774	1774	1774	1774	1774	1774	1774	1774	1774	1774	1774	1774	1774	1774	1774	1774	1774	1774	1774	1774	1774	1774	1774	1774
2231.6	1818	1818	1818	1818	1818	1818	1818	1818	1818	1818	1818	1818	1818	1818	1818	1818	1818	1818	1818	1818	1818	1818	1818	1818
2231.7	1862	1862	1862	1862	1862	1862	1862	1862	1862	1862	1862	1862	1862	1862	1862	1862	1862	1862	1862	1862	1862	1862	1862	1862
2231.8	1906	1906	1906	1906	1906	1906	1906	1906	1906	1906	1906	1906	1906	1906	1906	1906	1906	1906	1906	1906	1906	1906	1906	1906
2231.9	1950	1950	1950	1950	1950	1950	1950	1950	1950	1950	1950	1950	1950	1950	1950	1950	1950	1950	1950	1950	1950	1950	1950	1950
2232.0	1995	1995	1995	1995	1995	1995	1995	1995	1995	1995	1995	1995	1995	1995	1995	1995	1995	1995	1995	1995	1995	1995	1995	1995
2232.1	2040	2040	2040	2040	2040	2040	2040	2040	2040	2040	2040	2040	2040	2040	2040	2040	2040	2040	2040	2040	2040	2040	2040	2040
2232.2	2086	2086	2086	2086	2086	2086	2086	2086	2086	2086	2086	2086	2086	2086	2086	2086	2086	2086	2086	2086	2086	2086	2086	2086
2232.3	2132	2132	2132	2132	2132	2132	2132	2132	2132	2132	2132	2132	2132	2132	2132	2132	2132	2132	2132	2132	2132	2132	2132	2132
2232.4	2179	2179	2179	2179	2179	2179	2179	2179	2179	2179	2179	2179	2179	2179	2179	2179	2179	2179	2179	2179	2179	2179	2179	2179
2232.5	2225	2225	2225	2225	2225	2225	2225	2225	2225	2225	2225	2225	2225	2225	2225	2225	2225	2225	2225	2225	2225	2225	2225	2225
2232.6	2272	2272	2272	2272	2272	2272	2272	2272	2272	2272	2272	2272	2272	2272	2272	2272	2272	2272	2272	2272	2272	2272	2272	2272
2232.7	2320	2320	2320	2320	2320	2320	2320	2320	2320	2320	2320	2320	2320	2320	2320	2320	2320	2320	2320	2320	2320	2320	2320	2320
2232.8	2368	2368	2368	2368	2368	2368	2368	2368	2368	2368	2368	2368	2368	2368	2368	2368	2368	2368	2368	2368	2368	2368	2368	2368
2232.9	2416	2416	2416	2416	2416	2416	2416	2416	2416	2416	2416	2416	2416	2416	2416	2416	2416	2416	2416	2416	2416	2416	2416	2416
2233.0	2464	2464	2464	2464	2464	2464	2464	2464	2464	2464	2464	2464	2464	2464	2464	2464	2464	2464	2464	2464	2464	2464	2464	2464
2233.1	2513	2513	2513	2513	2513	2513	2513	2513	2513	2513	2513	2513	2513	2513	2513	2513	2513	2513	2513	2513	2513	2513	2513	2513
2233.2	2563	2563	2563	2563	2563	2563	2563	2563	2563	2563	2563	2563	2563	2563	2563	2563	2563	2563	2563	2563	2563	2563	2563	2563
2233.3	2612	2612	2612	2612	2612	2612	2612	2612	2612	2612	2612	2612	2612	2612	2612	2612	2612	2612	2612	2612	2612	2612	2612	2612
2233.4	2662	2662	2662	2662	2662	2662	2662	2662	2662	2662	2662	2662	2662	2662	2662	2662	2662	2662	2662	2662	2662	2662	2662	2662
2233.5	2712	2712	2712	2712	2712	2712	2712	2712	2712	2712	2712	2712	2712	2712	2712	2712	2712	2712	2712	2712	2712	2712	2712	2712
2233.6	2763	2763	2763	2763	2763	2763	2763	2763	2763	2763	2763	2763	2763	2763	2763	2763	2763	2763	2763	2763	2763	2763	2763	2763
2233.7	2814	2814	2814	2814	2814	2814	2814	2814	2814	2814	2814	2814	2814	2814	2814	2814	2814	2814	2814	2814	2814	2814	2814	2814
2233.8	2865	2865	2865	2865	2865	2865	2865	2865	2865	2865	2865	2865	2865	2865	2865	2865	2865	2865	2865	2865	2865	2865	2865	2865
2233.9	2917	2917	2917	2917	2917	2917	2917	2917	2917	2917	2917	2917	2917	2917	2917	2917	2917	2917	2917	2917	2917	2917	2917	2917
2234.0	2969	2969	2969	2969	2969	2969	2969	2969	2969	2969	2969	2969	2969	2969	2969	2969	2969	2969	2969	2969	2969	2969	2969	2969
2234.1	3021	3021	3021	3021	3021	3021	3021	3021	3021	3021	3021	3021	3021	3021	3021	3021	3021	3021	3021	3021	3021	3021	3021	3021
2234.2	3074	3074	3074	3074	3074	3074	3074	3074	3074	3074	3074	3074	3074	3074	3074	3074	3074	3074	3074	3074	3074	3074	3074	3074
2234.3	3127	3127	3127	3127	3127	3127	3127	3127	3127	3127	3127	3127	3127	3127	3127	3127	3127	3127	3127	3127	3127	3127	3127	3127
2234.4	3180	3180	3180	3180	3180	3180	3180	3180	3180	3180	3180	3180	3180	3180	3180	3180	3180	3180	3180	3180	3180	3180	3180	3180
2234.5	3234	3234	3234	3234	3234	3234	3234	3234	3234	3234	3234	3234	3234	3234	3234	3234	3234	3234	3234	3234	3234	3234	3234	3234
2234.6	3288	3288	3288	3288	3288	3288	3288	3288	3288	3288	3288	3288	3288	3288	3288	3288	3288	3288	3288	3288	3288	3288	3288	3288
2234.7	3342	3342	3342	3342	3342	3342	3342	3342	3342	3342	3342	3342	3342	3342	3342	3342	3342	3342	3342	3342	3342	3342	3342	3342
2234.8	3397	3397	3397	3397	3397	3397	3397	3397	3397	3397	3397	3397	3397	3397	3397	3397	3397	3397	3397	3397	3397	3397	3397	3397
2234.9	3452	3452	3452	3452	3452	3452	3452	3452	3452	3452	3452	3452	3452	3452	3452	3452	3452	3452	3452	3452	3452	3452	3452	3452

FORT PECK DAM SPILLWAY RATING TABLE
DISCHARGE IN CFS **(ONE BAY)**

~~629~~ Indicates Pool Elevation is greater than Top of Gate Elevation
1145 Indicates discharge is in the unstable range between weir and orifice flow

GATE LIP ELEV.	2238.50	2239.00	2239.50	2240.00	2240.50	2241.00	2241.50	2242.00	2242.50	2243.00	2243.50	2244.00	2244.50	2245.00	2245.50	2246.00	2246.50	2247.00	2247.50	2248.00	2248.50	2249.00	2249.50	2250.00
POOL ELEV.	GATE DIAL INDICATOR OPENING IN FEET																							
	13.5	14.0	14.5	15.0	15.5	16.0	16.5	17.0	17.5	18.0	18.5	19.0	19.5	20.0	20.5	21.0	21.5	22.0	22.5	23.0	23.5	24.0	24.5	25.0
2235.0	3507	3507	3507	3507	3507	3507	3507	3507	3507	3507	3507	3507	3507	3507	3507	3507	3507	3507	3507	3507	3507	3507	3507	3507
2235.1	3562	3562	3562	3562	3562	3562	3562	3562	3562	3562	3562	3562	3562	3562	3562	3562	3562	3562	3562	3562	3562	3562	3562	3562
2235.2	3618	3618	3618	3618	3618	3618	3618	3618	3618	3618	3618	3618	3618	3618	3618	3618	3618	3618	3618	3618	3618	3618	3618	3618
2235.3	3675	3675	3675	3675	3675	3675	3675	3675	3675	3675	3675	3675	3675	3675	3675	3675	3675	3675	3675	3675	3675	3675	3675	3675
2235.4	3731	3731	3731	3731	3731	3731	3731	3731	3731	3731	3731	3731	3731	3731	3731	3731	3731	3731	3731	3731	3731	3731	3731	3731
2235.5	3788	3788	3788	3788	3788	3788	3788	3788	3788	3788	3788	3788	3788	3788	3788	3788	3788	3788	3788	3788	3788	3788	3788	3788
2235.6	3845	3845	3845	3845	3845	3845	3845	3845	3845	3845	3845	3845	3845	3845	3845	3845	3845	3845	3845	3845	3845	3845	3845	3845
2235.7	3903	3903	3903	3903	3903	3903	3903	3903	3903	3903	3903	3903	3903	3903	3903	3903	3903	3903	3903	3903	3903	3903	3903	3903
2235.8	3960	3960	3960	3960	3960	3960	3960	3960	3960	3960	3960	3960	3960	3960	3960	3960	3960	3960	3960	3960	3960	3960	3960	3960
2235.9	4018	4018	4018	4018	4018	4018	4018	4018	4018	4018	4018	4018	4018	4018	4018	4018	4018	4018	4018	4018	4018	4018	4018	4018
2236.0	4077	4077	4077	4077	4077	4077	4077	4077	4077	4077	4077	4077	4077	4077	4077	4077	4077	4077	4077	4077	4077	4077	4077	4077
2236.1	4136	4136	4136	4136	4136	4136	4136	4136	4136	4136	4136	4136	4136	4136	4136	4136	4136	4136	4136	4136	4136	4136	4136	4136
2236.2	4195	4195	4195	4195	4195	4195	4195	4195	4195	4195	4195	4195	4195	4195	4195	4195	4195	4195	4195	4195	4195	4195	4195	4195
2236.3	4254	4254	4254	4254	4254	4254	4254	4254	4254	4254	4254	4254	4254	4254	4254	4254	4254	4254	4254	4254	4254	4254	4254	4254
2236.4	4313	4313	4313	4313	4313	4313	4313	4313	4313	4313	4313	4313	4313	4313	4313	4313	4313	4313	4313	4313	4313	4313	4313	4313
2236.5	4373	4373	4373	4373	4373	4373	4373	4373	4373	4373	4373	4373	4373	4373	4373	4373	4373	4373	4373	4373	4373	4373	4373	4373
2236.6	4434	4434	4434	4434	4434	4434	4434	4434	4434	4434	4434	4434	4434	4434	4434	4434	4434	4434	4434	4434	4434	4434	4434	4434
2236.7	4494	4494	4494	4494	4494	4494	4494	4494	4494	4494	4494	4494	4494	4494	4494	4494	4494	4494	4494	4494	4494	4494	4494	4494
2236.8	4555	4555	4555	4555	4555	4555	4555	4555	4555	4555	4555	4555	4555	4555	4555	4555	4555	4555	4555	4555	4555	4555	4555	4555
2236.9	4616	4616	4616	4616	4616	4616	4616	4616	4616	4616	4616	4616	4616	4616	4616	4616	4616	4616	4616	4616	4616	4616	4616	4616
2237.0	4678	4678	4678	4678	4678	4678	4678	4678	4678	4678	4678	4678	4678	4678	4678	4678	4678	4678	4678	4678	4678	4678	4678	4678
2237.1	4739	4739	4739	4739	4739	4739	4739	4739	4739	4739	4739	4739	4739	4739	4739	4739	4739	4739	4739	4739	4739	4739	4739	4739
2237.2	4801	4801	4801	4801	4801	4801	4801	4801	4801	4801	4801	4801	4801	4801	4801	4801	4801	4801	4801	4801	4801	4801	4801	4801
2237.3	4864	4864	4864	4864	4864	4864	4864	4864	4864	4864	4864	4864	4864	4864	4864	4864	4864	4864	4864	4864	4864	4864	4864	4864
2237.4	4926	4926	4926	4926	4926	4926	4926	4926	4926	4926	4926	4926	4926	4926	4926	4926	4926	4926	4926	4926	4926	4926	4926	4926
2237.5	4989	4989	4989	4989	4989	4989	4989	4989	4989	4989	4989	4989	4989	4989	4989	4989	4989	4989	4989	4989	4989	4989	4989	4989
2237.6	5052	5052	5052	5052	5052	5052	5052	5052	5052	5052	5052	5052	5052	5052	5052	5052	5052	5052	5052	5052	5052	5052	5052	5052
2237.7	5116	5116	5116	5116	5116	5116	5116	5116	5116	5116	5116	5116	5116	5116	5116	5116	5116	5116	5116	5116	5116	5116	5116	5116
2237.8	5179	5179	5179	5179	5179	5179	5179	5179	5179	5179	5179	5179	5179	5179	5179	5179	5179	5179	5179	5179	5179	5179	5179	5179
2237.9	5243	5243	5243	5243	5243	5243	5243	5243	5243	5243	5243	5243	5243	5243	5243	5243	5243	5243	5243	5243	5243	5243	5243	5243
2238.0	5308	5308	5308	5308	5308	5308	5308	5308	5308	5308	5308	5308	5308	5308	5308	5308	5308	5308	5308	5308	5308	5308	5308	5308
2238.1	5372	5372	5372	5372	5372	5372	5372	5372	5372	5372	5372	5372	5372	5372	5372	5372	5372	5372	5372	5372	5372	5372	5372	5372
2238.2	5437	5437	5437	5437	5437	5437	5437	5437	5437	5437	5437	5437	5437	5437	5437	5437	5437	5437	5437	5437	5437	5437	5437	5437
2238.3	5503	5503	5503	5503	5503	5503	5503	5503	5503	5503	5503	5503	5503	5503	5503	5503	5503	5503	5503	5503	5503	5503	5503	5503
2238.4	5568	5568	5568	5568	5568	5568	5568	5568	5568	5568	5568	5568	5568	5568	5568	5568	5568	5568	5568	5568	5568	5568	5568	5568
2238.5	5634	5634	5634	5634	5634	5634	5634	5634	5634	5634	5634	5634	5634	5634	5634	5634	5634	5634	5634	5634	5634	5634	5634	5634
2238.6	5700	5700	5700	5700	5700	5700	5700	5700	5700	5700	5700	5700	5700	5700	5700	5700	5700	5700	5700	5700	5700	5700	5700	5700
2238.7	5766	5766	5766	5766	5766	5766	5766	5766	5766	5766	5766	5766	5766	5766	5766	5766	5766	5766	5766	5766	5766	5766	5766	5766
2238.8	5833	5833	5833	5833	5833	5833	5833	5833	5833	5833	5833	5833	5833	5833	5833	5833	5833	5833	5833	5833	5833	5833	5833	5833
2238.9	5900	5900	5900	5900	5900	5900	5900	5900	5900	5900	5900	5900	5900	5900	5900	5900	5900	5900	5900	5900	5900	5900	5900	5900
2239.0	5967	5967	5967	5967	5967	5967	5967	5967	5967	5967	5967	5967	5967	5967	5967	5967	5967	5967	5967	5967	5967	5967	5967	5967
2239.1	6034	6034	6034	6034	6034	6034	6034	6034	6034	6034	6034	6034	6034	6034	6034	6034	6034	6034	6034	6034	6034	6034	6034	6034
2239.2	6102	6102	6102	6102	6102	6102	6102	6102	6102	6102	6102	6102	6102	6102	6102	6102	6102	6102	6102	6102	6102	6102	6102	6102
2239.3	6170	6170	6170	6170	6170	6170	6170	6170	6170	6170	6170	6170	6170	6170	6170	6170	6170	6170	6170	6170	6170	6170	6170	6170
2239.4	6238	6238	6238	6238	6238	6238	6238	6238	6238	6238	6238	6238	6238	6238	6238	6238	6238	6238	6238	6238	6238	6238	6238	6238
2239.5	6307	6307	6307	6307	6307	6307	6307	6307	6307	6307	6307	6307	6307	6307	6307	6307	6307	6307	6307	6307	6307	6307	6307	6307
2239.6	6375	6375	6375	6375	6375	6375	6375	6375	6375	6375	6375	6375	6375	6375	6375	6375	6375	6375	6375	6375	6375	6375	6375	6375
2239.7	6444	6444	6444	6444	6444	6444	6444	6444	6444	6444	6444	6444	6444	6444	6444	6444	6444	6444	6444	6444	6444	6444	6444	6444
2239.8	6514	6514	6514	6514	6514	6514	6514	6514	6514	6514	6514	6514	6514	6514	6514	6514	6514	6514	6514	6514	6514	6514	6514	6514
2239.9	6583	6583	6583	6583	6583	6583	6583	6583	6583	6583	6583	6583	6583	6583	6583	6583	6583	6583	6583	6583	6583	6583	6583	6583

FORT PECK DAM SPILLWAY RATING TABLE
DISCHARGE IN CFS **(ONE BAY)**

~~629~~ Indicates Pool Elevation is greater than Top of Gate Elevation
1145 Indicates discharge is in the unstable range between weir and orifice flow

GATE LIP ELEV.	2238.50	2239.00	2239.50	2240.00	2240.50	2241.00	2241.50	2242.00	2242.50	2243.00	2243.50	2244.00	2244.50	2245.00	2245.50	2246.00	2246.50	2247.00	2247.50	2248.00	2248.50	2249.00	2249.50	2250.00
POOL ELEV.	GATE DIAL INDICATOR OPENING IN FEET																							
	13.5	14.0	14.5	15.0	15.5	16.0	16.5	17.0	17.5	18.0	18.5	19.0	19.5	20.0	20.5	21.0	21.5	22.0	22.5	23.0	23.5	24.0	24.5	25.0
2240.0	6653	6653	6653	6653	6653	6653	6653	6653	6653	6653	6653	6653	6653	6653	6653	6653	6653	6653	6653	6653	6653	6653	6653	6653
2240.1	6723	6723	6723	6723	6723	6723	6723	6723	6723	6723	6723	6723	6723	6723	6723	6723	6723	6723	6723	6723	6723	6723	6723	6723
2240.2	6794	6794	6794	6794	6794	6794	6794	6794	6794	6794	6794	6794	6794	6794	6794	6794	6794	6794	6794	6794	6794	6794	6794	6794
2240.3	6865	6865	6865	6865	6865	6865	6865	6865	6865	6865	6865	6865	6865	6865	6865	6865	6865	6865	6865	6865	6865	6865	6865	6865
2240.4	6936	6936	6936	6936	6936	6936	6936	6936	6936	6936	6936	6936	6936	6936	6936	6936	6936	6936	6936	6936	6936	6936	6936	6936
2240.5	7007	7007	7007	7007	7007	7007	7007	7007	7007	7007	7007	7007	7007	7007	7007	7007	7007	7007	7007	7007	7007	7007	7007	7007
2240.6	7078	7078	7078	7078	7078	7078	7078	7078	7078	7078	7078	7078	7078	7078	7078	7078	7078	7078	7078	7078	7078	7078	7078	7078
2240.7	7150	7150	7150	7150	7150	7150	7150	7150	7150	7150	7150	7150	7150	7150	7150	7150	7150	7150	7150	7150	7150	7150	7150	7150
2240.8	7222	7222	7222	7222	7222	7222	7222	7222	7222	7222	7222	7222	7222	7222	7222	7222	7222	7222	7222	7222	7222	7222	7222	7222
2240.9	7294	7294	7294	7294	7294	7294	7294	7294	7294	7294	7294	7294	7294	7294	7294	7294	7294	7294	7294	7294	7294	7294	7294	7294
2241.0	7367	7367	7367	7367	7367	7367	7367	7367	7367	7367	7367	7367	7367	7367	7367	7367	7367	7367	7367	7367	7367	7367	7367	7367
2241.1	7440	7440	7440	7440	7440	7440	7440	7440	7440	7440	7440	7440	7440	7440	7440	7440	7440	7440	7440	7440	7440	7440	7440	7440
2241.2	7513	7513	7513	7513	7513	7513	7513	7513	7513	7513	7513	7513	7513	7513	7513	7513	7513	7513	7513	7513	7513	7513	7513	7513
2241.3	7586	7586	7586	7586	7586	7586	7586	7586	7586	7586	7586	7586	7586	7586	7586	7586	7586	7586	7586	7586	7586	7586	7586	7586
2241.4	7660	7660	7660	7660	7660	7660	7660	7660	7660	7660	7660	7660	7660	7660	7660	7660	7660	7660	7660	7660	7660	7660	7660	7660
2241.5	7733	7733	7733	7733	7733	7733	7733	7733	7733	7733	7733	7733	7733	7733	7733	7733	7733	7733	7733	7733	7733	7733	7733	7733
2241.6	7808	7808	7808	7808	7808	7808	7808	7808	7808	7808	7808	7808	7808	7808	7808	7808	7808	7808	7808	7808	7808	7808	7808	7808
2241.7	7882	7882	7882	7882	7882	7882	7882	7882	7882	7882	7882	7882	7882	7882	7882	7882	7882	7882	7882	7882	7882	7882	7882	7882
2241.8	7957	7957	7957	7957	7957	7957	7957	7957	7957	7957	7957	7957	7957	7957	7957	7957	7957	7957	7957	7957	7957	7957	7957	7957
2241.9	8031	8031	8031	8031	8031	8031	8031	8031	8031	8031	8031	8031	8031	8031	8031	8031	8031	8031	8031	8031	8031	8031	8031	8031
2242.0	8107	8107	8107	8107	8107	8107	8107	8107	8107	8107	8107	8107	8107	8107	8107	8107	8107	8107	8107	8107	8107	8107	8107	8107
2242.1	8182	8182	8182	8182	8182	8182	8182	8182	8182	8182	8182	8182	8182	8182	8182	8182	8182	8182	8182	8182	8182	8182	8182	8182
2242.2	8258	8258	8258	8258	8258	8258	8258	8258	8258	8258	8258	8258	8258	8258	8258	8258	8258	8258	8258	8258	8258	8258	8258	8258
2242.3	8333	8333	8333	8333	8333	8333	8333	8333	8333	8333	8333	8333	8333	8333	8333	8333	8333	8333	8333	8333	8333	8333	8333	8333
2242.4	8410	8410	8410	8410	8410	8410	8410	8410	8410	8410	8410	8410	8410	8410	8410	8410	8410	8410	8410	8410	8410	8410	8410	8410
2242.5	8486	8486	8486	8486	8486	8486	8486	8486	8486	8486	8486	8486	8486	8486	8486	8486	8486	8486	8486	8486	8486	8486	8486	8486
2242.6	8563	8563	8563	8563	8563	8563	8563	8563	8563	8563	8563	8563	8563	8563	8563	8563	8563	8563	8563	8563	8563	8563	8563	8563
2242.7	8640	8640	8640	8640	8640	8640	8640	8640	8640	8640	8640	8640	8640	8640	8640	8640	8640	8640	8640	8640	8640	8640	8640	8640
2242.8	8717	8717	8717	8717	8717	8717	8717	8717	8717	8717	8717	8717	8717	8717	8717	8717	8717	8717	8717	8717	8717	8717	8717	8717
2242.9	8794	8794	8794	8794	8794	8794	8794	8794	8794	8794	8794	8794	8794	8794	8794	8794	8794	8794	8794	8794	8794	8794	8794	8794
2243.0	8872	8872	8872	8872	8872	8872	8872	8872	8872	8872	8872	8872	8872	8872	8872	8872	8872	8872	8872	8872	8872	8872	8872	8872
2243.1	8950	8950	8950	8950	8950	8950	8950	8950	8950	8950	8950	8950	8950	8950	8950	8950	8950	8950	8950	8950	8950	8950	8950	8950
2243.2	9028	9028	9028	9028	9028	9028	9028	9028	9028	9028	9028	9028	9028	9028	9028	9028	9028	9028	9028	9028	9028	9028	9028	9028
2243.3	9106	9106	9106	9106	9106	9106	9106	9106	9106	9106	9106	9106	9106	9106	9106	9106	9106	9106	9106	9106	9106	9106	9106	9106
2243.4	9185	9185	9185	9185	9185	9185	9185	9185	9185	9185	9185	9185	9185	9185	9185	9185	9185	9185	9185	9185	9185	9185	9185	9185
2243.5	9264	9264	9264	9264	9264	9264	9264	9264	9264	9264	9264	9264	9264	9264	9264	9264	9264	9264	9264	9264	9264	9264	9264	9264
2243.6	9343	9343	9343	9343	9343	9343	9343	9343	9343	9343	9343	9343	9343	9343	9343	9343	9343	9343	9343	9343	9343	9343	9343	9343
2243.7	9422	9422	9422	9422	9422	9422	9422	9422	9422	9422	9422	9422	9422	9422	9422	9422	9422	9422	9422	9422	9422	9422	9422	9422
2243.8	9502	9502	9502	9502	9502	9502	9502	9502	9502	9502	9502	9502	9502	9502	9502	9502	9502	9502	9502	9502	9502	9502	9502	9502
2243.9	9582	9582	9582	9582	9582	9582	9582	9582	9582	9582	9582	9582	9582	9582	9582	9582	9582	9582	9582	9582	9582	9582	9582	9582
2244.0	9662	9662	9662	9662	9662	9662	9662	9662	9662	9662	9662	9662	9662	9662	9662	9662	9662	9662	9662	9662	9662	9662	9662	9662
2244.1	9742	9742	9742	9742	9742	9742	9742	9742	9742	9742	9742	9742	9742	9742	9742	9742	9742	9742	9742	9742	9742	9742	9742	9742
2244.2	9823	9823	9823	9823	9823	9823	9823	9823	9823	9823	9823	9823	9823	9823	9823	9823	9823	9823	9823	9823	9823	9823	9823	9823
2244.3	9904	9904	9904	9904	9904	9904	9904	9904	9904	9904	9904	9904	9904	9904	9904	9904	9904	9904	9904	9904	9904	9904	9904	9904
2244.4	9985	9985	9985	9985	9985	9985	9985	9985	9985	9985	9985	9985	9985	9985	9985	9985	9985	9985	9985	9985	9985	9985	9985	9985
2244.5	10066	10066	10066	10066	10066	10066	10066	10066	10066	10066	10066	10066	10066	10066	10066	10066	10066	10066	10066	10066	10066	10066	10066	10066
2244.6	10148	10148	10148	10148	10148	10148	10148	10148	10148	10148	10148	10148	10148	10148	10148	10148	10148	10148	10148	10148	10148	10148	10148	10148
2244.7	10214	10230	10230	10230	10230	10230	10230	10230	10230	10230	10230	10230	10230	10230	10230	10230	10230	10230	10230	10230	10230	10230	10230	10230
2244.8	10254	10312	10312	10312	10312	10312	10312	10312	10312	10312	10312	10312	10312	10312	10312	10312	10312	10312	10312	10312	10312	10312	10312	10312
2244.9	10295	10394	10394	10394	10394	10394	10394	10394	10394	10394	10394	10394	10394	10394	10394	10394	10394	10394	10394	10394	10394	10394	10394	10394

FORT PECK DAM SPILLWAY RATING TABLE
DISCHARGE IN CFS **(ONE BAY)**

~~629~~ Indicates Pool Elevation is greater than Top of Gate Elevation
1145 Indicates discharge is in the unstable range between weir and orifice flow

GATE LIP ELEV.	2238.50	2239.00	2239.50	2240.00	2240.50	2241.00	2241.50	2242.00	2242.50	2243.00	2243.50	2244.00	2244.50	2245.00	2245.50	2246.00	2246.50	2247.00	2247.50	2248.00	2248.50	2249.00	2249.50	2250.00
POOL ELEV.	GATE DIAL INDICATOR OPENING IN FEET																							
	13.5	14.0	14.5	15.0	15.5	16.0	16.5	17.0	17.5	18.0	18.5	19.0	19.5	20.0	20.5	21.0	21.5	22.0	22.5	23.0	23.5	24.0	24.5	25.0
2245.0	10335	10476	10476	10476	10476	10476	10476	10476	10476	10476	10476	10476	10476	10476	10476	10476	10476	10476	10476	10476	10476	10476	10476	10476
2245.1	10375	10559	10559	10559	10559	10559	10559	10559	10559	10559	10559	10559	10559	10559	10559	10559	10559	10559	10559	10559	10559	10559	10559	10559
2245.2	10415	10642	10642	10642	10642	10642	10642	10642	10642	10642	10642	10642	10642	10642	10642	10642	10642	10642	10642	10642	10642	10642	10642	10642
2245.3	10454	10725	10725	10725	10725	10725	10725	10725	10725	10725	10725	10725	10725	10725	10725	10725	10725	10725	10725	10725	10725	10725	10725	10725
2245.4	10494	10809	10809	10809	10809	10809	10809	10809	10809	10809	10809	10809	10809	10809	10809	10809	10809	10809	10809	10809	10809	10809	10809	10809
2245.5	10533	10893	10893	10893	10893	10893	10893	10893	10893	10893	10893	10893	10893	10893	10893	10893	10893	10893	10893	10893	10893	10893	10893	10893
2245.6	10572	10944	10977	10977	10977	10977	10977	10977	10977	10977	10977	10977	10977	10977	10977	10977	10977	10977	10977	10977	10977	10977	10977	10977
2245.7	10612	10985	11061	11061	11061	11061	11061	11061	11061	11061	11061	11061	11061	11061	11061	11061	11061	11061	11061	11061	11061	11061	11061	11061
2245.8	10651	11026	11145	11145	11145	11145	11145	11145	11145	11145	11145	11145	11145	11145	11145	11145	11145	11145	11145	11145	11145	11145	11145	11145
2245.9	10689	11067	11230	11230	11230	11230	11230	11230	11230	11230	11230	11230	11230	11230	11230	11230	11230	11230	11230	11230	11230	11230	11230	11230
2246.0	10728	11108	11315	11315	11315	11315	11315	11315	11315	11315	11315	11315	11315	11315	11315	11315	11315	11315	11315	11315	11315	11315	11315	11315
2246.1	10767	11149	11400	11400	11400	11400	11400	11400	11400	11400	11400	11400	11400	11400	11400	11400	11400	11400	11400	11400	11400	11400	11400	11400
2246.2	10805	11189	11485	11485	11485	11485	11485	11485	11485	11485	11485	11485	11485	11485	11485	11485	11485	11485	11485	11485	11485	11485	11485	11485
2246.3	10843	11230	11571	11571	11571	11571	11571	11571	11571	11571	11571	11571	11571	11571	11571	11571	11571	11571	11571	11571	11571	11571	11571	11571
2246.4	10881	11270	11657	11657	11657	11657	11657	11657	11657	11657	11657	11657	11657	11657	11657	11657	11657	11657	11657	11657	11657	11657	11657	11657
2246.5	10919	11310	11736	11743	11743	11743	11743	11743	11743	11743	11743	11743	11743	11743	11743	11743	11743	11743	11743	11743	11743	11743	11743	11743
2246.6	10957	11350	11778	11829	11829	11829	11829	11829	11829	11829	11829	11829	11829	11829	11829	11829	11829	11829	11829	11829	11829	11829	11829	11829
2246.7	10995	11390	11820	11915	11915	11915	11915	11915	11915	11915	11915	11915	11915	11915	11915	11915	11915	11915	11915	11915	11915	11915	11915	11915
2246.8	11033	11430	11862	12002	12002	12002	12002	12002	12002	12002	12002	12002	12002	12002	12002	12002	12002	12002	12002	12002	12002	12002	12002	12002
2246.9	11070	11469	11904	12089	12089	12089	12089	12089	12089	12089	12089	12089	12089	12089	12089	12089	12089	12089	12089	12089	12089	12089	12089	12089
2247.0	11107	11509	11945	12176	12176	12176	12176	12176	12176	12176	12176	12176	12176	12176	12176	12176	12176	12176	12176	12176	12176	12176	12176	12176
2247.1	11145	11548	11987	12264	12264	12264	12264	12264	12264	12264	12264	12264	12264	12264	12264	12264	12264	12264	12264	12264	12264	12264	12264	12264
2247.2	11182	11587	12028	12351	12351	12351	12351	12351	12351	12351	12351	12351	12351	12351	12351	12351	12351	12351	12351	12351	12351	12351	12351	12351
2247.3	11219	11626	12069	12439	12439	12439	12439	12439	12439	12439	12439	12439	12439	12439	12439	12439	12439	12439	12439	12439	12439	12439	12439	12439
2247.4	11256	11665	12110	12527	12527	12527	12527	12527	12527	12527	12527	12527	12527	12527	12527	12527	12527	12527	12527	12527	12527	12527	12527	12527
2247.5	11292	11704	12151	12570	12616	12616	12616	12616	12616	12616	12616	12616	12616	12616	12616	12616	12616	12616	12616	12616	12616	12616	12616	12616
2247.6	11329	11742	12192	12613	12704	12704	12704	12704	12704	12704	12704	12704	12704	12704	12704	12704	12704	12704	12704	12704	12704	12704	12704	12704
2247.7	11366	11781	12233	12656	12793	12793	12793	12793	12793	12793	12793	12793	12793	12793	12793	12793	12793	12793	12793	12793	12793	12793	12793	12793
2247.8	11402	11819	12273	12699	12882	12882	12882	12882	12882	12882	12882	12882	12882	12882	12882	12882	12882	12882	12882	12882	12882	12882	12882	12882
2247.9	11438	11857	12314	12741	12971	12971	12971	12971	12971	12971	12971	12971	12971	12971	12971	12971	12971	12971	12971	12971	12971	12971	12971	12971
2248.0	11474	11895	12354	12783	13061	13061	13061	13061	13061	13061	13061	13061	13061	13061	13061	13061	13061	13061	13061	13061	13061	13061	13061	13061
2248.1	11510	11933	12394	12826	13151	13151	13151	13151	13151	13151	13151	13151	13151	13151	13151	13151	13151	13151	13151	13151	13151	13151	13151	13151
2248.2	11546	11971	12434	12868	13240	13240	13240	13240	13240	13240	13240	13240	13240	13240	13240	13240	13240	13240	13240	13240	13240	13240	13240	13240
2248.3	11582	12009	12474	12910	13331	13331	13331	13331	13331	13331	13331	13331	13331	13331	13331	13331	13331	13331	13331	13331	13331	13331	13331	13331
2248.4	11618	12047	12514	12952	13380	13421	13421	13421	13421	13421	13421	13421	13421	13421	13421	13421	13421	13421	13421	13421	13421	13421	13421	13421
2248.5	11653	12084	12553	12993	13424	13512	13512	13512	13512	13512	13512	13512	13512	13512	13512	13512	13512	13512	13512	13512	13512	13512	13512	13512
2248.6	11689	12121	12593	13035	13468	13602	13602	13602	13602	13602	13602	13602	13602	13602	13602	13602	13602	13602	13602	13602	13602	13602	13602	13602
2248.7	11724	12159	12632	13076	13511	13693	13693	13693	13693	13693	13693	13693	13693	13693	13693	13693	13693	13693	13693	13693	13693	13693	13693	13693
2248.8	11760	12196	12671	13118	13554	13785	13785	13785	13785	13785	13785	13785	13785	13785	13785	13785	13785	13785	13785	13785	13785	13785	13785	13785
2248.9	11795	12233	12711	13159	13598	13876	13876	13876	13876	13876	13876	13876	13876	13876	13876	13876	13876	13876	13876	13876	13876	13876	13876	13876
2249.0	11830	12270	12750	13200	13641	13968	13968	13968	13968	13968	13968	13968	13968	13968	13968	13968	13968	13968	13968	13968	13968	13968	13968	13968
2249.1	11865	12307	12788	13241	13684	14060	14060	14060	14060	14060	14060	14060	14060	14060	14060	14060	14060	14060	14060	14060	14060	14060	14060	14060
2249.2	11900	12343	12827	13282	13727	14152	14152	14152	14152	14152	14152	14152	14152	14152	14152	14152	14152	14152	14152	14152	14152	14152	14152	14152
2249.3	11934	12380	12866	13322	13769	14243	14244	14244	14244	14244	14244	14244	14244	14244	14244	14244	14244	14244	14244	14244	14244	14244	14244	14244
2249.4	11969	12417	12904	13363	13812	14288	14337	14337	14337	14337	14337	14337	14337	14337	14337	14337	14337	14337	14337	14337	14337	14337	14337	14337
2249.5	12004	12453	12943	13403	13854	14332	14430	14430	14430	14430	14430	14430	14430	14430	14430	14430	14430	14430	14430	14430	14430	14430	14430	14430
2249.6	12038	12489	12981	13443	13897	14377	14523	14523	14523	14523	14523	14523	14523	14523	14523	14523	14523	14523	14523	14523	14523	14523	14523	14523
2249.7	12072	12525	13019	13484	13939	14421	14616	14616	14616	14616	14616	14616	14616	14616	14616	14616	14616	14616	14616	14616	14616	14616	14616	14616
2249.8	12107	12562	13057	13524	13981	14465	14709	14709	14709	14709	14709	14709	14709	14709	14709	14709	14709	14709	14709	14709	14709	14709	14709	14709
2249.9	12141	12598	13095	13564	14023	14510	14803	14803	14803	14803	14803	14803	14803	14803	14803	14803	14803	14803	14803	14803	14803	14803	14803	14803

FORT PECK DAM SPILLWAY RATING TABLE
DISCHARGE IN CFS **(ONE BAY)**

~~629~~ Indicates Pool Elevation is greater than Top of Gate Elevation
1145 Indicates discharge is in the unstable range between weir and orifice flow

GATE LIP ELEV.	2238.50	2239.00	2239.50	2240.00	2240.50	2241.00	2241.50	2242.00	2242.50	2243.00	2243.50	2244.00	2244.50	2245.00	2245.50	2246.00	2246.50	2247.00	2247.50	2248.00	2248.50	2249.00	2249.50	2250.00
POOL ELEV.	GATE DIAL INDICATOR OPENING IN FEET																							
	13.5	14.0	14.5	15.0	15.5	16.0	16.5	17.0	17.5	18.0	18.5	19.0	19.5	20.0	20.5	21.0	21.5	22.0	22.5	23.0	23.5	24.0	24.5	25.0
2250.0	12175	12833	13133	13603	14065	14553	14897	14897	14897	14897	14897	14897	14897	14897	14897	14897	14897	14897	14897	14897	14897	14897	14897	14897
2250.1	12209	12669	13171	13643	14106	14587	14991	14991	14991	14991	14991	14991	14991	14991	14991	14991	14991	14991	14991	14991	14991	14991	14991	14991
2250.2	12243	12705	13209	13683	14148	14641	15085	15085	15085	15085	15085	15085	15085	15085	15085	15085	15085	15085	15085	15085	15085	15085	15085	15085
2250.3	12276	12740	13246	13722	14189	14685	15137	15180	15180	15180	15180	15180	15180	15180	15180	15180	15180	15180	15180	15180	15180	15180	15180	15180
2250.4	12310	12776	13284	13762	14231	14728	15182	15274	15274	15274	15274	15274	15274	15274	15274	15274	15274	15274	15274	15274	15274	15274	15274	15274
2250.5	12344	12811	13321	13801	14272	14771	15227	15369	15369	15369	15369	15369	15369	15369	15369	15369	15369	15369	15369	15369	15369	15369	15369	15369
2250.6	12377	12847	13358	13840	14313	14814	15273	15465	15465	15465	15465	15465	15465	15465	15465	15465	15465	15465	15465	15465	15465	15465	15465	15465
2250.7	12411	12882	13395	13879	14354	14857	15318	15560	15560	15560	15560	15560	15560	15560	15560	15560	15560	15560	15560	15560	15560	15560	15560	15560
2250.8	12444	12917	13432	13918	14395	14900	15362	15656	15656	15656	15656	15656	15656	15656	15656	15656	15656	15656	15656	15656	15656	15656	15656	15656
2250.9	12477	12952	13469	13957	14436	14943	15407	15751	15751	15751	15751	15751	15751	15751	15751	15751	15751	15751	15751	15751	15751	15751	15751	15751
2251.0	12510	12987	13506	13995	14476	14986	15452	15847	15847	15847	15847	15847	15847	15847	15847	15847	15847	15847	15847	15847	15847	15847	15847	15847
2251.1	12544	13022	13543	14034	14517	15026	15497	15944	15944	15944	15944	15944	15944	15944	15944	15944	15944	15944	15944	15944	15944	15944	15944	15944
2251.2	12576	13056	13579	14072	14557	15071	15541	16022	16040	16040	16040	16040	16040	16040	16040	16040	16040	16040	16040	16040	16040	16040	16040	16040
2251.3	12609	13091	13616	14111	14597	15113	15585	16069	16137	16137	16137	16137	16137	16137	16137	16137	16137	16137	16137	16137	16137	16137	16137	16137
2251.4	12642	13125	13652	14149	14638	15155	15629	16115	16234	16234	16234	16234	16234	16234	16234	16234	16234	16234	16234	16234	16234	16234	16234	16234
2251.5	12675	13160	13689	14187	14678	15197	15673	16161	16331	16331	16331	16331	16331	16331	16331	16331	16331	16331	16331	16331	16331	16331	16331	16331
2251.6	12708	13194	13725	14225	14718	15239	15717	16207	16428	16428	16428	16428	16428	16428	16428	16428	16428	16428	16428	16428	16428	16428	16428	16428
2251.7	12740	13228	13761	14263	14757	15281	15761	16253	16525	16525	16525	16525	16525	16525	16525	16525	16525	16525	16525	16525	16525	16525	16525	16525
2251.8	12773	13263	13797	14301	14797	15323	15805	16299	16623	16623	16623	16623	16623	16623	16623	16623	16623	16623	16623	16623	16623	16623	16623	16623
2251.9	12805	13297	13833	14339	14837	15365	15848	16344	16721	16721	16721	16721	16721	16721	16721	16721	16721	16721	16721	16721	16721	16721	16721	16721
2252.0	12837	13331	13869	14377	14876	15406	15892	16390	16819	16819	16819	16819	16819	16819	16819	16819	16819	16819	16819	16819	16819	16819	16819	16819
2252.1	12869	13365	13905	14414	14916	15447	15935	16435	16905	16918	16918	16918	16918	16918	16918	16918	16918	16918	16918	16918	16918	16918	16918	16918
2252.2	12902	13398	13940	14452	14955	15489	15978	16480	16952	17016	17016	17016	17016	17016	17016	17016	17016	17016	17016	17016	17016	17016	17016	17016
2252.3	12934	13432	13976	14489	14994	15530	16021	16525	17000	17115	17115	17115	17115	17115	17115	17115	17115	17115	17115	17115	17115	17115	17115	17115
2252.4	12966	13466	14011	14526	15033	15571	16064	16570	17046	17214	17214	17214	17214	17214	17214	17214	17214	17214	17214	17214	17214	17214	17214	17214
2252.5	12998	13499	14047	14564	15072	15612	16107	16615	17093	17313	17313	17313	17313	17313	17313	17313	17313	17313	17313	17313	17313	17313	17313	17313
2252.6	13029	13533	14082	14601	15111	15653	16150	16660	17140	17413	17413	17413	17413	17413	17413	17413	17413	17413	17413	17413	17413	17413	17413	17413
2252.7	13061	13566	14117	14638	15150	15694	16193	16704	17186	17512	17512	17512	17512	17512	17512	17512	17512	17512	17512	17512	17512	17512	17512	17512
2252.8	13093	13600	14152	14675	15189	15734	16235	16749	17233	17612	17612	17612	17612	17612	17612	17612	17612	17612	17612	17612	17612	17612	17612	17612
2252.9	13124	13633	14187	14711	15227	15775	16277	16793	17279	17709	17712	17712	17712	17712	17712	17712	17712	17712	17712	17712	17712	17712	17712	17712
2253.0	13156	13666	14222	14748	15266	15815	16320	16837	17325	17757	17812	17812	17812	17812	17812	17812	17812	17812	17812	17812	17812	17812	17812	17812
2253.1	13187	13699	14257	14785	15304	15856	16362	16881	17371	17805	17913	17913	17913	17913	17913	17913	17913	17913	17913	17913	17913	17913	17913	17913
2253.2	13219	13732	14292	14821	15343	15896	16404	16925	17417	17853	18013	18013	18013	18013	18013	18013	18013	18013	18013	18013	18013	18013	18013	18013
2253.3	13250	13765	14327	14858	15381	15936	16446	16969	17463	17900	18114	18114	18114	18114	18114	18114	18114	18114	18114	18114	18114	18114	18114	18114
2253.4	13281	13798	14361	14894	15419	15978	16488	17013	17509	17948	18215	18215	18215	18215	18215	18215	18215	18215	18215	18215	18215	18215	18215	18215
2253.5	13312	13831	14396	14930	15457	16016	16530	17057	17554	17995	18316	18316	18316	18316	18316	18316	18316	18316	18316	18316	18316	18316	18316	18316
2253.6	13344	13863	14430	14966	15495	16056	16571	17100	17600	18042	18418	18418	18418	18418	18418	18418	18418	18418	18418	18418	18418	18418	18418	18418
2253.7	13375	13896	14465	15003	15533	16095	16613	17144	17645	18090	18519	18519	18519	18519	18519	18519	18519	18519	18519	18519	18519	18519	18519	18519
2253.8	13405	13928	14499	15039	15571	16135	16654	17187	17690	18136	18594	18621	18621	18621	18621	18621	18621	18621	18621	18621	18621	18621	18621	18621
2253.9	13436	13961	14533	15074	15608	16175	16695	17230	17735	18183	18643	18723	18723	18723	18723	18723	18723	18723	18723	18723	18723	18723	18723	18723
2254.0	13467	13993	14567	15110	15646	16214	16737	17273	17780	18230	18691	18826	18826	18826	18826	18826	18826	18826	18826	18826	18826	18826	18826	18826
2254.1	13498	14026	14601	15146	15683	16253	16778	17316	17825	18277	18740	18928	18928	18928	18928	18928	18928	18928	18928	18928	18928	18928	18928	18928
2254.2	13528	14058	14635	15182	15721	16293	16819	17359	17870	18323	18788	19031	19031	19031	19031	19031	19031	19031	19031	19031	19031	19031	19031	19031
2254.3	13559	14090	14669	15217	15758	16332	16860	17402	17914	18370	18836	19134	19134	19134	19134	19134	19134	19134	19134	19134	19134	19134	19134	19134
2254.4	13590	14122	14703	15253	15795	16371	16901	17445	17959	18416	18884	19237	19237	19237	19237	19237	19237	19237	19237	19237	19237	19237	19237	19237
2254.5	13620	14154	14737	15288	15832	16410	16941	17487	18003	18462	18932	19340	19340	19340	19340	19340	19340	19340	19340	19340	19340	19340	19340	19340
2254.6	13650	14186	14770	15324	15869	16449	16982	17530	18048	18508	18980	19398	19444	19444	19444	19444	19444	19444	19444	19444	19444	19444	19444	19444
2254.7	13681	14218	14804	15359	15906	16487	17023	17572	18092	18554	19028	19447	19547	19547	19547	19547	19547	19547	19547	19547	19547	19547	19547	19547
2254.8	13711	14250	14837	15394	15943	16526	17063	17614	18136	18600	19075	19496	19651	19651	19651	19651	19651	19651	19651	19651	19651	19651	19651	19651
2254.9	13741	14281	14871	15429	15980	16565	17103	17657	18180	18645	19123	19545	19755	19755	19755	19755	19755	19755	19755	19755	19755	19755	19755	19755

FORT PECK DAM SPILLWAY RATING TABLE
DISCHARGE IN CFS **(ONE BAY)**

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1145 Indicates discharge is in the unstable range between weir and orifice flow

GATE LIP ELEV.	2238.50	2239.00	2239.50	2240.00	2240.50	2241.00	2241.50	2242.00	2242.50	2243.00	2243.50	2244.00	2244.50	2245.00	2245.50	2246.00	2246.50	2247.00	2247.50	2248.00	2248.50	2249.00	2249.50	2250.00
POOL ELEV.	GATE DIAL INDICATOR OPENING IN FEET																							
	13.5	14.0	14.5	15.0	15.5	16.0	16.5	17.0	17.5	18.0	18.5	19.0	19.5	20.0	20.5	21.0	21.5	22.0	22.5	23.0	23.5	24.0	24.5	25.0
2255.0	13771	14313	14904	15464	16017	16603	17144	17699	18224	18691	19170	19594	19860	19860	19860	19860	19860	19860	19860	19860	19860	19860	19860	19860
2255.1	13801	14345	14937	15499	16053	16642	17184	17741	18267	18736	19217	19643	19964	19964	19964	19964	19964	19964	19964	19964	19964	19964	19964	19964
2255.2	13831	14376	14971	15534	16090	16680	17224	17782	18311	18782	19264	19692	20069	20069	20069	20069	20069	20069	20069	20069	20069	20069	20069	20069
2255.3	13861	14408	15004	15569	16126	16718	17264	17824	18355	18827	19311	19741	20129	20174	20174	20174	20174	20174	20174	20174	20174	20174	20174	20174
2255.4	13891	14439	15037	15603	16163	16756	17304	17866	18398	18872	19358	19789	20179	20279	20279	20279	20279	20279	20279	20279	20279	20279	20279	20279
2255.5	13921	14470	15070	15638	16199	16794	17343	17907	18441	18917	19405	19838	20229	20384	20384	20384	20384	20384	20384	20384	20384	20384	20384	20384
2255.6	13951	14502	15103	15673	16235	16832	17383	17949	18485	18962	19452	19886	20279	20489	20489	20489	20489	20489	20489	20489	20489	20489	20489	20489
2255.7	13980	14533	15136	15707	16271	16870	17423	17990	18528	19007	19498	19934	20329	20595	20595	20595	20595	20595	20595	20595	20595	20595	20595	20595
2255.8	14010	14564	15168	15741	16307	16908	17462	18032	18571	19051	19545	19982	20379	20701	20701	20701	20701	20701	20701	20701	20701	20701	20701	20701
2255.9	14039	14595	15201	15776	16343	16946	17502	18073	18614	19096	19591	20030	20428	20807	20807	20807	20807	20807	20807	20807	20807	20807	20807	20807
2256.0	14069	14626	15234	15810	16379	16983	17541	18114	18657	19141	19637	20078	20478	20870	20913	20913	20913	20913	20913	20913	20913	20913	20913	20913
2256.1	14098	14657	15266	15844	16415	17021	17580	18155	18699	19185	19683	20126	20527	20920	21020	21020	21020	21020	21020	21020	21020	21020	21020	21020
2256.2	14128	14688	15299	15878	16451	17058	17619	18196	18742	19229	19729	20173	20576	20971	21127	21127	21127	21127	21127	21127	21127	21127	21127	21127
2256.3	14157	14718	15331	15912	16486	17096	17659	18237	18785	19273	19775	20221	20625	21022	21233	21233	21233	21233	21233	21233	21233	21233	21233	21233
2256.4	14186	14749	15364	15946	16522	17133	17697	18277	18827	19317	19821	20268	20674	21072	21341	21341	21341	21341	21341	21341	21341	21341	21341	21341
2256.5	14215	14780	15396	15980	16557	17170	17736	18318	18869	19361	19867	20316	20723	21123	21448	21448	21448	21448	21448	21448	21448	21448	21448	21448
2256.6	14244	14810	15428	16014	16593	17208	17775	18359	18912	19405	19912	20363	20771	21173	21555	21555	21555	21555	21555	21555	21555	21555	21555	21555
2256.7	14273	14841	15460	16048	16628	17245	17814	18399	18954	19449	19958	20410	20820	21223	21619	21663	21663	21663	21663	21663	21663	21663	21663	21663
2256.8	14302	14871	15492	16081	16663	17282	17853	18439	18996	19493	20003	20457	20869	21273	21670	21771	21771	21771	21771	21771	21771	21771	21771	21771
2256.9	14331	14902	15524	16115	16699	17319	17891	18480	19038	19536	20048	20504	20917	21323	21722	21879	21879	21879	21879	21879	21879	21879	21879	21879
2257.0	14360	14932	15556	16149	16734	17355	17930	18520	19080	19580	20093	20550	20965	21373	21773	21987	21987	21987	21987	21987	21987	21987	21987	21987
2257.1	14389	14962	15588	16182	16769	17392	17968	18560	19122	19623	20139	20597	21013	21422	21824	22096	22096	22096	22096	22096	22096	22096	22096	22096
2257.2	14418	14993	15620	16215	16804	17429	18006	18600	19163	19667	20183	20643	21061	21472	21875	22204	22204	22204	22204	22204	22204	22204	22204	22204
2257.3	14446	15023	15652	16249	16839	17465	18045	18640	19205	19710	20228	20690	21109	21521	21926	22313	22313	22313	22313	22313	22313	22313	22313	22313
2257.4	14475	15053	15683	16282	16874	17502	18083	18680	19246	19753	20273	20736	21157	21571	21977	22377	22422	22422	22422	22422	22422	22422	22422	22422
2257.5	14504	15083	15715	16315	16908	17538	18121	18720	19288	19796	20318	20782	21205	21620	22028	22429	22531	22531	22531	22531	22531	22531	22531	22531
2257.6	14532	15113	15747	16348	16943	17575	18159	18759	19329	19839	20362	20829	21252	21669	22079	22481	22641	22641	22641	22641	22641	22641	22641	22641
2257.7	14561	15143	15778	16381	16978	17611	18197	18799	19370	19882	20407	20875	21300	21718	22129	22533	22750	22750	22750	22750	22750	22750	22750	22750
2257.8	14589	15173	15810	16414	17012	17647	18235	18839	19412	19924	20451	20920	21347	21767	22180	22585	22860	22860	22860	22860	22860	22860	22860	22860
2257.9	14617	15203	15841	16447	17047	17683	18272	18878	19453	19967	20495	20966	21395	21816	22230	22637	22970	22970	22970	22970	22970	22970	22970	22970
2258.0	14646	15232	15872	16480	17081	17720	18310	18917	19494	20010	20540	21012	21442	21866	22280	22689	23080	23080	23080	23080	23080	23080	23080	23080
2258.1	14674	15262	15903	16513	17115	17756	18348	18957	19535	20052	20584	21058	21489	21913	22330	22740	23143	23191	23191	23191	23191	23191	23191	23191
2258.2	14702	15292	15935	16546	17150	17791	18385	18996	19576	20094	20628	21103	21536	21962	22380	22792	23196	23301	23301	23301	23301	23301	23301	23301
2258.3	14730	15321	15966	16578	17184	17827	18423	19035	19616	20137	20672	21148	21583	22010	22430	22843	23249	23412	23412	23412	23412	23412	23412	23412
2258.4	14758	15351	15997	16611	17218	17863	18460	19074	19657	20179	20715	21194	21629	22058	22480	22894	23302	23523	23523	23523	23523	23523	23523	23523
2258.5	14787	15380	16028	16643	17252	17899	18497	19113	19697	20221	20759	21239	21676	22106	22529	22945	23354	23634	23634	23634	23634	23634	23634	23634
2258.6	14815	15410	16059	16676	17286	17934	18535	19152	19738	20263	20803	21284	21723	22154	22579	22996	23407	23745	23745	23745	23745	23745	23745	23745
2258.7	14842	15439	16090	16708	17320	17970	18572	19191	19778	20305	20846	21329	21769	22202	22628	23047	23459	23857	23857	23857	23857	23857	23857	23857
2258.8	14870	15468	16121	16741	17354	18006	18609	19229	19819	20347	20890	21374	21816	22250	22678	23098	23512	23918	23969	23969	23969	23969	23969	23969
2258.9	14898	15497	16151	16773	17388	18041	18646	19268	19859	20389	20933	21419	21862	22298	22727	23149	23564	23972	24081	24081	24081	24081	24081	24081
2259.0	14926	15527	16182	16805	17421	18076	18683	19306	19899	20430	20976	21464	21908	22345	22776	23199	23616	24025	24193	24193	24193	24193	24193	24193
2259.1	14954	15556	16213	16837	17455	18112	18720	19345	19939	20472	21019	21508	21954	22393	22825	23250	23668	24079	24305	24305	24305	24305	24305	24305
2259.2	14981	15585	16243	16869	17489	18147	18756	19383	19979	20513	21062	21553	22000	22440	22874	23300	23720	24132	24417	24417	24417	24417	24417	24417
2259.3	15009	15614	16274	16901	17522	18182	18793	19422	20019	20555	21105	21597	22046	22488	22923	23350	23771	24185	24530	24530	24530	24530	24530	24530
2259.4	15037	15643	16304	16933	17556	18217	18830	19460	20059	20596	21148	21642	22092	22535	22971	23401	23823	24238	24643	24643	24643	24643	24643	24643
2259.5	15064	15672	16335	16965	17589	18252	18866	19498	20099	20637	21191	21686	22137	22582	23020	23451	23875	24291	24701	24756	24756	24756	24756	24756
2259.6	15092	15701	16365	16997	17622	18287	18903	19536	20138	20679	21234	21730	22183	22629	23068	23501	23926	24344	24756	24869	24869	24869	24869	24869
2259.7	15119	15729	16395	17029	17656	18322	18939	19574	20178	20720	21277	21774	22228	22676	23117	23550	23977	24397	24810	24983	24983	24983	24983	24983
2259.8	15146	15758	16426	17061	17689	18357	18976	19612	20218	20761	21319	21818	22274	22723	23165	23600	24028	24450	24864	25096	25096	25096	25096	25096
2259.9	15174	15787	16456	17092	17722	18392	19012	19650	20257	20802	21362	21862	22319	22770	23213	23650	24079	24502	24918	25210	25210	25210	25210	25210

FORT PECK DAM SPILLWAY RATING TABLE
DISCHARGE IN CFS **(ONE BAY)**

~~629~~ Indicates Pool Elevation is greater than Top of Gate Elevation
1145 Indicates discharge is in the unstable range between weir and orifice flow

GATE LIP ELEV.	2238.50	2239.00	2239.50	2240.00	2240.50	2241.00	2241.50	2242.00	2242.50	2243.00	2243.50	2244.00	2244.50	2245.00	2245.50	2246.00	2246.50	2247.00	2247.50	2248.00	2248.50	2249.00	2249.50	2250.00
POOL ELEV.	GATE DIAL INDICATOR OPENING IN FEET																							
	13.5	14.0	14.5	15.0	15.5	16.0	16.5	17.0	17.5	18.0	18.5	19.0	19.5	20.0	20.5	21.0	21.5	22.0	22.5	23.0	23.5	24.0	24.5	25.0
2260.0	15201	15815	16486	17124	17755	18426	19048	19688	20296	20843	21404	21906	22364	22816	23261	23699	24130	24555	24972	25324	25324	25324	25324	25324
2260.1	15228	15844	16516	17155	17788	18461	19084	19726	20336	20883	21446	21950	22410	22863	23309	23749	24181	24607	25026	25437	25438	25438	25438	25438
2260.2	15255	15873	16546	17187	17821	18495	19120	19763	20375	20924	21488	21993	22455	22909	23357	23798	24232	24659	25079	25493	25553	25553	25553	25553
2260.3	15282	15901	16576	17218	17854	18530	19156	19801	20414	20965	21531	22037	22500	22955	23405	23847	24283	24711	25133	25548	25667	25667	25667	25667
2260.4	15310	15929	16606	17250	17887	18564	19192	19838	20453	21005	21573	22081	22544	23002	23452	23896	24333	24763	25187	25603	25782	25782	25782	25782
2260.5	15337	15958	16636	17281	17920	18599	19228	19876	20492	21046	21615	22124	22589	23048	23500	23945	24384	24815	25240	25658	25897	25897	25897	25897
2260.6	15364	15986	16666	17312	17953	18633	19264	19913	20531	21086	21657	22167	22634	23094	23547	23994	24434	24867	25293	25712	26012	26012	26012	26012
2260.7	15390	16014	16695	17344	17985	18667	19300	19951	20570	21126	21698	22211	22679	23140	23595	24043	24484	24919	25346	25767	26127	26127	26127	26127
2260.8	15417	16043	16725	17375	18018	18701	19335	19988	20609	21167	21740	22254	22723	23186	23642	24092	24534	24970	25399	25821	26237	26243	26243	26243
2260.9	15444	16071	16755	17406	18050	18736	19371	20025	20647	21207	21782	22297	22767	23232	23689	24140	24584	25022	25452	25876	26292	26358	26358	26358

[redacted]NWO

From: [redacted]LRC
Sent: Friday, June 03, 2011 2:40 PM
To: Farhat, Jody S NWD02
Subject: Interview- Mike McGinnis (UNCLASSIFIED)

Importance: High

Classification: UNCLASSIFIED
Caveats: NONE

Jody, here is Mike's last article for your information prior to conducting this next interview, which I set on your desk.

http://www.agriculture.com/news/crops/its-a-disaster_2-ar16590
5/16/2011
CHICAGO, Illinois (Agriculture.com)--The floodwaters that inundated southeast Missouri and southwest Illinois farmland earlier this month now threaten millions of acres in the rich farming region of the Mississippi Delta.

Under a worst-case scenario, if levees break, Mississippi farmers could lose up to 1.2 million acres of crops this month. Also, across the river, Arkansas farmers are crossing their fingers that the levees hold. Farmers as far as 60 miles east of the rising Mississippi River are preparing to lose ground.

Backwater from the Mississippi, flooding nearby tributaries and lakes, is flooding farmland.

Dee Paul, farms with his father Denny outside of Yazoo City in west-central Mississippi. With 70% of their crops already under water, the Paul's expect to lose 95% of their farmland to flooded waters."It's a nightmare," Dee Paul says. "We are running a combine through water today to get wheat harvested before it's completely flooded." The water is rising a foot-and-a-half per day, Paul says.

Multiple Losses

With corn and soybeans already planted, farmers are facing losing inputs as well as the crops. "We will lose 90% of our corn inputs and all inputs in the wheat crop," Paul says. Jack Bridgers, Jimmy Sanders Inc. crop consultant, works with the Paul family. Farmers living between the towns of Yazoo City and Vicksburg have seen knee-high corn, harvest-ready wheat, emerged soybeans and cotton already flooded, he says. "What will kill these farmers are the contracts they already booked. The corn, soybeans and wheat already sold will not be raised," Bridgers says.

Michael Thompson, a Thornton, Mississippi, cotton/corn/soybean farmer with about 1,000 Delta acres threatened by approaching waters, has built three miles of levees. "We have about 200 acres underwater now. But, the floodwaters are like a cancer that keeps spreading. You still feel good, but you know you have it and it will hit you at some point," Thompson says.

The Thompson's have been planting all week, knowing that a majority of the crops will eventually be flooded. "If you don't plant, you're out those acres for the year. We can file for preventive planting, but that doesn't pay out. So, we are planting for crop insurance coverage, I guess," Thompson says. It's tough."

The downside is that if the flood doesn't happen, the farmer is left with dealing with the levee mess that he created trying to protect his land.

River Stage Level

As of Friday, the Mississippi River stage is the highest its been since 1927. The next worst flood occurred in 1973. However, in that year, crops had not been planted yet.

"As long as the levees hold, we'll be in good shape," Bridgers says. "If they (levees) bust, a lot more towns and farmland will be flooded. It wouldn't be good."

Arkansas Not Spared

Brent Griffin, University of Arkansas Extension Agent in Prairie County, Arkansas, says area farmers have experienced one crop-weather extreme to another.

"With planting season delayed due to rain, then a nice start to emergence, to having flooded crops, we're learning real fast how the good Lord can change things," Griffin says.

In his southeastern Arkansas county, it turns out that farmers were fortunate to have a wet enough month of April to delay planting. Otherwise, even more acres would be affected than in current danger, Griffin says. The bottom ground, next to the White and Cache Rivers never did get planted.

"Unfortunately, I don't know how long it will be before these floodwaters recede," Griffin says. "We could have 100,000 acres of cropland in this county not planted this year. The way the government could hold up this water, it could be July before this water is out of here."

Ultimately, less rice and grain sorghum, and corn will be planted and more soybeans, he says.

"We just need to dry out," Griffin says.

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http://www.flickr.com/photos/usacechicago
Great Lakes and Mississippi River Interbasin Study (GLMRIS):
http://glmris.anl.gov
http://facebook.com/glmris

Classification: UNCLASSIFIED
Caveats: NONE

[redacted] NWO

From: [redacted] NWO
Sent: Friday, June 03, 2011 2:36 PM
To: CENWO-EOC NWO; Williamson, Eileen L NWO; [redacted] MVR; Farhat, Jody S NWD02; [redacted] HQ02; [redacted] HQ02; [redacted] HQ02; [redacted] W HQ02; [redacted] LRH; [redacted] LRH; [redacted] MVM
Cc: [redacted] NWO; [redacted] NWD02; Farhat, Jody S NWD02; [redacted] NWD02; [redacted] NWD02; [redacted] NWD-OMAHA; [redacted] NWD02; [redacted] NWD02; [redacted] NWD02; [redacted] NWD02; [redacted] NWD02; [redacted] NWD02; [redacted] NWO; [redacted] RMC; [redacted] NWD02; [redacted] NWD; [redacted] E MVD
Subject: Missouri River Basin Water Management Division Situation Report of 6-3-11 (UNCLASSIFIED)
Attachments: Missouri River Basin Water Management Situation Report 6-3-11.docx

Classification: UNCLASSIFIED
Caveats: NONE

Kim/ Eileen,

Today's NWD Water Management situation report is attached.

[redacted]
Missouri Basin Water Managment Division
Northwestern Division
Corps of Engineers
[redacted]
[redacted]@usace.army.mil

Classification: UNCLASSIFIED
Caveats: NONE

Missouri River Basin Water Management Situation Report – 6-3-11

Reservoir Conditions

The upper three reservoirs of the Missouri River Mainstem Reservoir System provide the bulk of the storage of water. All three are in their exclusive flood control zones, nearing their spillway crests. Table 1 summarizes the situation as of 0000 hours this morning. More details on the reservoirs can be found on the daily bulletin prepared by the Missouri River Basin Water Management Division at: http://www.nwd-mr.usace.army.mil/rcc/reports/showrep.cgi?4BULL0MR1.

Table 1. Key Reservoir Data (through 0000 hrs 6/3/11)

Reservoir	Inflow kcfs	Outflow kcfs	Top of Spillway Gates feet msl	Current Level feet msl	24-hr Change feet
Fort Peck	73.0	13.0	2250	2250.0	0.6
Garrison	131.0	105.0	1854	1853.8	0.4
Oahe	100.0	86.9	1620	1618.9	0.1
Big Bend	82.0	77.9	1423	1419.7	0.2
Fort Randall	85.0	83.1	1375	1360.0	0.0
Gavins Point	83.0	83.7	1210	1206.3	-0.2

Based on the current level data on the upper three reservoirs, the amount of remaining storage is diminishing. One way to characterize this factor is to compute the percent of the exclusive flood control zone that is remaining to store water before water passes uncontrolled over the spillway gates. The lower three reservoirs have much less capability to store the inflows that are coming into the Missouri River Mainstem Reservoir System, with Fort Randall Reservoir having the greater amount. As of today, the stored water has not yet entered the exclusive flood control zones of the three smaller reservoirs; therefore, 100 percent of their exclusive flood control storage remains available. Table 2 summarizes the storage volumes of all six System reservoirs, with the last column listing the amount of exclusive flood control storage that remains as of today. Spillways are now being used at five of the six reservoirs, with the spillway at Big Bend going into service today. Because the spillway gates are open at Fort Peck and Garrison, the percent of exclusive may become a negative number over the next day or two, as water follows the gates up as they are raised higher to release more water.

Table 2. Reservoir Storage Data (through 0000 hrs 6/3/11)

Reservoir	Current kAF	Total kAF	Remaining kAF	Exclusive kAF	% Excl Left
Fort Peck	18,434	18,463	29	971	3
Garrison	23,679	23,821	142	1,489	10
Oahe	22,778	23,137	359	1,102	33
Big Bend	1,606	1,798	192	60	100
Fort Randall	3,973	5,418	1,445	985	100
Gavins Point	354	450	96	57	100

Releases from the five of the six reservoirs are currently exceeding records prior to 2011. The sixth, Fort Peck Reservoir, will exceed its record release within the next week. Table 3 provides release data for all six reservoirs to provide some perspective on the changes that will be happening over the next 2 weeks. A full listing of the data through mid-July is available at: http://www.nwd-mr.usace.army.mil/rcc/reports/twout.html.

Table 3. Reservoir Release Comparisons (through 0000 hours 6/3/11)

Reservoir	Yesterday	Forecast Today	7 days out 10 June	14 days out 17 June	Pre-2011 Record
	kcfs	kcfs	kcfs	kcfs	kcfs
Fort Peck	13.0	20.0	50	50	35
Garrison	105.0	115.0	135	150	65
Oahe	86.9	100.0	150	150	59
Big Bend	77.9	100.0	150	150	74
Fort Randall	83.1	98.0	143	148	67
Gavins Point	83.7	85.0	145	150	70

River Conditions

The cities of Bismarck, ND and Pierre, SD are preparing for flood stages on the Missouri River resulting primarily from the releases from Garrison and Oahe Dams, respectively. Many communities along the lower Missouri River are currently experiencing Missouri River flows that are above flood stage by several feet. The flood stages currently being experienced will be exceeded as Missouri River Mainstem Reservoir System releases increase over the next few weeks to pass the anticipated inflows from mountain snowpack runoff and heavy rains in the Missouri River basin. Table 4 summarizes the current conditions as of 0600 hours this morning and the Corps' current forecast for crest stages.

Table 4. Missouri River Stage Data for 6/3/11 at 0600 CDT

Location	Flood Stage	Current Stage	Forecast Crest Stage	Date of Crest Stage
Bismarck, ND	16	16.8	20-21	mid-Jun
Pierre, SD	15	15.3	18.7	mid-Jun
Sioux City, IA	30	28.6	35-37	mid-Jun thru July
Decatur, NE	35	33.6	40-42	mid-Jun thru July
Omaha, NE	29	29.4	34-36	mid-Jun thru July
Nebraska City, NE	18	23.0	27-28+	mid-Jun thru July
St. Joseph, MO	17	21.9	27-32	mid-Jun thru July
Kansas City, MO	32	27.3	30-39	mid-Jun thru July
Waverly, MO	20	24.4	27-31	mid-Jun thru July
Boonville, MO	21	22.0	27-33	mid-Jun thru July
Hermann, MO	21	22.5	27-33	mid-Jun thru July

Information on Current Mountain Snowpack and Forecasted Rainfall

Releases from the System reservoirs are based on snowpack and rainfall forecasts in the Missouri River basin. An updated snowfall forecast was not prepared today; however, the Hydrologic Prediction Center (HPC) of NOAA prepares a rainfall forecast daily for up to the next 5 days, with an accumulated figure also presented on its website. Figure 1 is the accumulated 5-day rainfall forecast released today by HPC, and Figure 2 is still yesterday's mountain snowpack update compiled by the Corps.

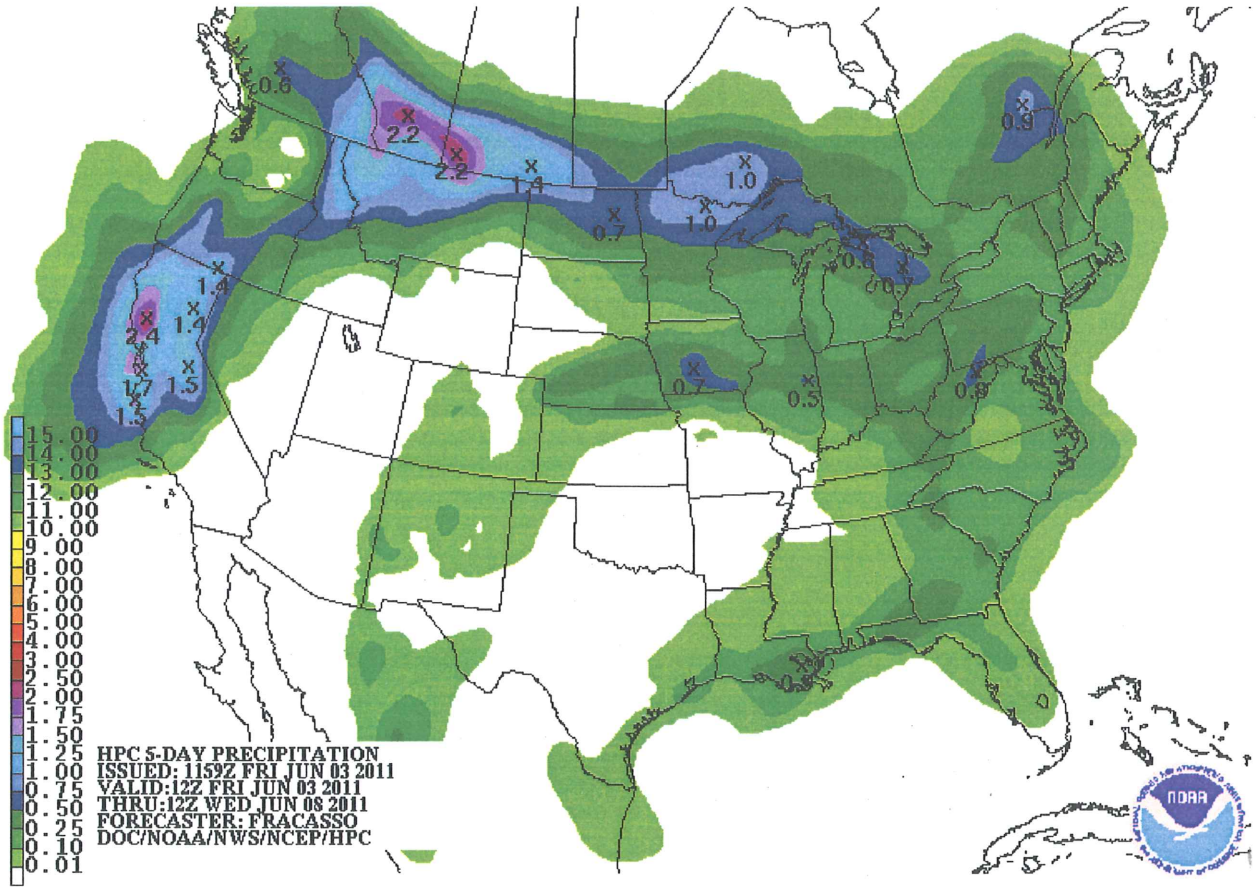


Figure 1. 5-day total QPF ending 0700 Wednesday, June 8, 2011.

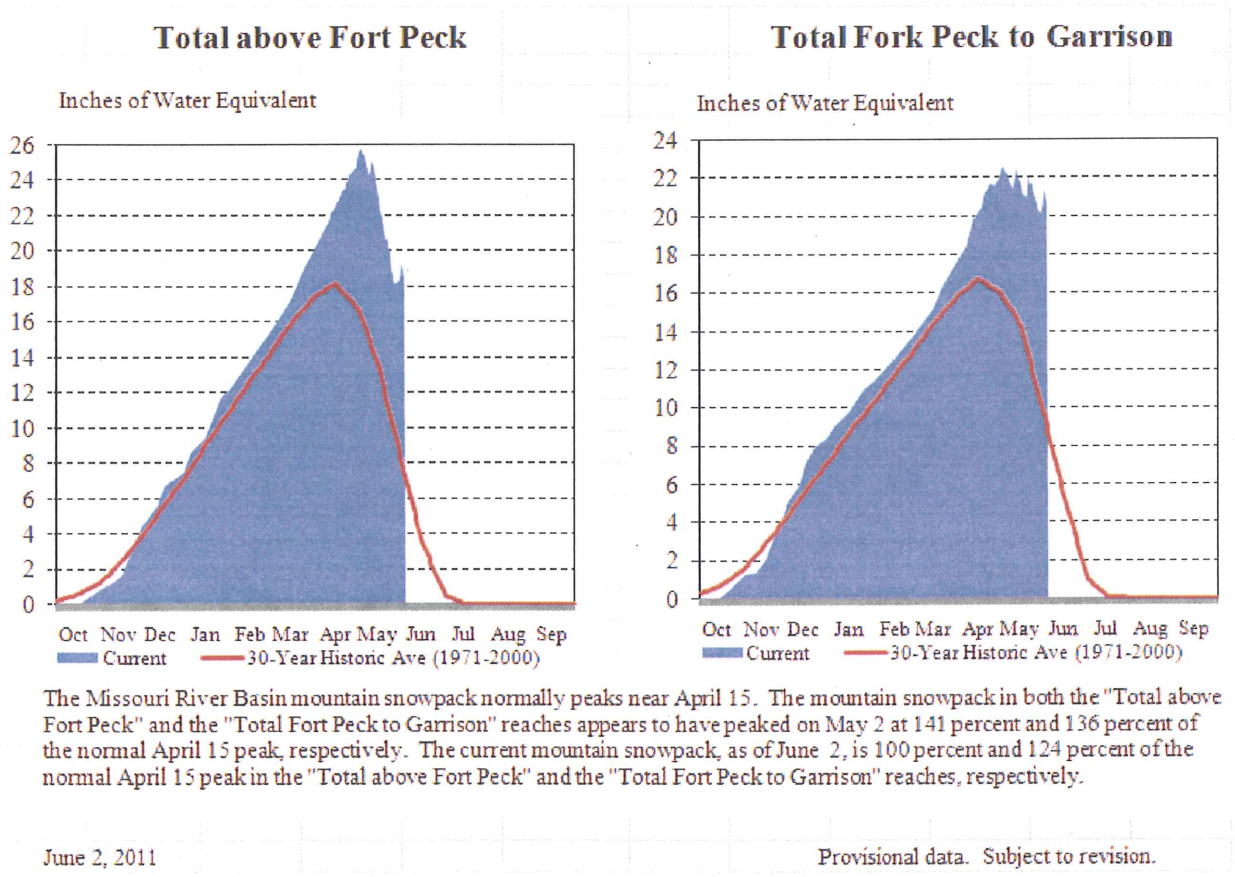


Figure 2. Missouri River basin mountain snowpack water content summary, 2010-2011 – June 2, 2011.

Actions Underway to Prepare for the Releases

Actions continue to prepare for the already high flows on the Missouri River and those that will result from the increased releases from the Missouri River Mainstem System reservoirs. The Omaha District continues to work with the cities of Bismarck/Mandan, ND and Pierre/Ft. Pierre, SD to construct levees to limit flood impacts to those cities. Floodplain evacuations have been ongoing for many lower-lying areas along the lower Missouri River. Floodplain inundation maps have been posted by the Omaha District to identify the areas of potential flooding for the emergency managers and the public. Overtopping of levees information is also available from both districts.

Review of today's Kansas City District Water Management bulletin indicates that the releases have all been stepped up again to evacuate the flood control storages in all of the district's reservoirs prior to the 150 kcfs release from Gavins Point Dam. Releases from some reservoirs were cutback for a period to allow inflow from a very heavy rainstorm to move down the Kansas River.

The Lake Audubon pool continues to rise slowly due to inflows from Garrison Reservoir. The rate of rise will remain at a decreased level as the Lake Audubon level continues to approach the 1850 ft msl level.

[redacted] NWO

From: [redacted] NWD
Sent: Friday, June 03, 2011 2:35 PM
To: [redacted] NWD; [redacted] NWK; [redacted] NWK; [redacted] NWD; [redacted] NWK; [redacted] NWO; [redacted] NWO; [redacted] NWK; [redacted] NWK; [redacted] NWO; [redacted] NWO; [redacted] NWK; [redacted] NWK; [redacted] NWO; [redacted] NWO; [redacted] NWD02; Farhat, Jody S NWD02; [redacted] NWO; [redacted] NWD02; [redacted] NWD02; [redacted] NWD02; [redacted] NWD02; [redacted] NWD02; [redacted] NWD02; [redacted] NWD02
Cc: Schenk, Kathryn M NWO; [redacted] NWK
Subject: Photos from the Omaha Pedestrian Bridge 2Jun11 Noon (UNCLASSIFIED)
Attachments: P1010050 (2).JPG; P1010052 (2).JPG; P1010053 (2).JPG; P1010059 (2).JPG; P1010060 (2).JPG

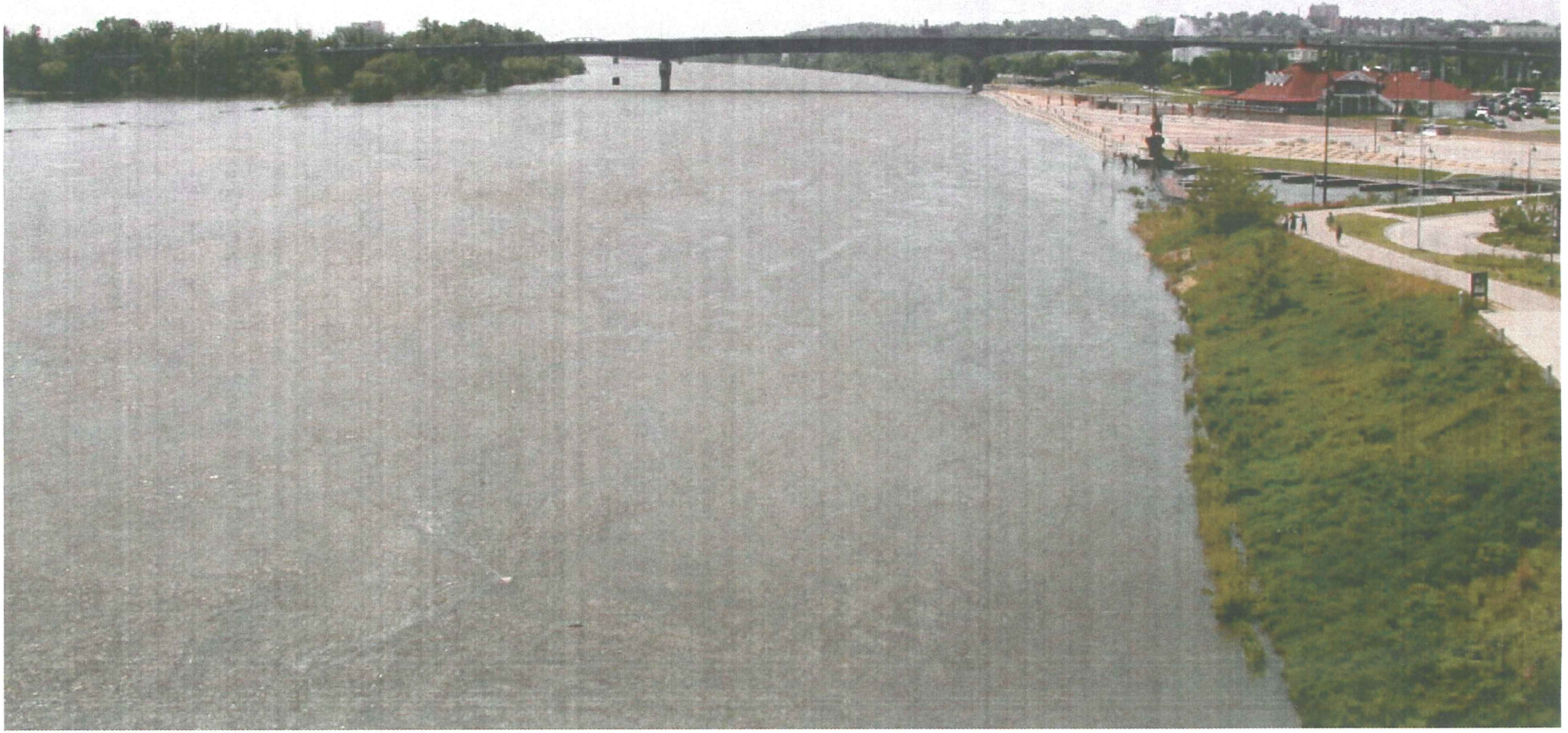
Classification: UNCLASSIFIED
Caveats: NONE

I will be taking photos during my lunch time over the next couple of weeks until the crest. May be fun to follow.

2 Jun 11 photos of interest

John

Classification: UNCLASSIFIED
Caveats: NONE



Boyd James

[redacted] NWO

From: [redacted]NWD02
Sent: Friday, June 03, 2011 1:27 PM
To: Farhat, Jody S NWD02
Subject: FW: Bismarck discharge measurement for June 3 (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

FYSA.

[redacted].
Reservoir Regulation Team Lead
Missouri River Basin Water Management,
Northwestern Division, USACE
[redacted]
[redacted] (fax)

-----Original Message-----
From: [redacted]n [mailto:smrobins@usgs.gov]
Sent: Friday, June 03, 2011 11:06 AM
To: [redacted] NWD02; bengelhardt@nd.gov; [redacted] NWO; [redacted] NWO; [redacted] NWO; kcasteel@nd.gov; [redacted] NWO; [redacted] NWD02; [redacted] NWD02; [redacted] NWD02; [redacted] NWO; [redacted] NWO; tom.gurss@noaa.gov; Allen.Schlag@noaa.gov; tsando@nd.gov; [redacted] NWO; mgunsch@houstoneng.com; tfay@nd.gov; david.sprynczynatyk@us.army.mil; kdemke@nd.gov; gwilz@nd.gov; bdarr@nd.gov; bpfeifer@nd.gov; smrobins@usgs.gov; Bradley A Sether; Ron@tomanengineering.com; [redacted] NWO; gjwiche@usgs.gov
Subject: Bismarck discharge measurement for June 3

Two discharge measurements were made on the Missouri River at Bismarck today

Measurement 1 @ 0812, Q = 107,600, GH =16.82, which yields a +1.08 ft shift to rating 16.0

Measurement 2 @ 0847, Q = 106,200, GH =16.83, which yields a +1.08 ft shift to rating 16.0

The mean channel velocity in the section was around 5.3 fps

The recorded maximum velocity was around 12.0 fps

The maximum depth was around 24.6 ft

The width at the measuring section was 1,200 ft

Both measurements will be loaded into the USGS database and the USGS webpage will be updated accordingly.

****
Steven M. Robinson
Chief, Hydrologic Records and Information Section North Dakota Water Science Center U. S. Geological Survey office 701-250-7404 cell 701-220-6309
****

Classification: UNCLASSIFIED

[redacted]NWO

From: bill mitzel [dcmag@orbitcom.biz]
Sent: Friday, June 03, 2011 12:44 PM
To: Farhat, Jody S NWD02
Subject: Re: Interview Request (UNCLASSIFIED)

Jody... thanks. I'll prepare a list of general questions I'll want to ask, then we can go from there. I hope to have those questions to you yet this afternoon or tonight, Saturday for sure and will touch bases with you on Monday. (That one sentence should have read "I'm NOT looking to launch an attack on the Corps.....). Thanks. Please give me a phone number to reach you on Monday.
Bill

On Jun 3, 2011, at 11:22 AM, Farhat, Jody S NWD02 wrote:

> Classification: UNCLASSIFIED
> Caveats: NONE
>
> Bill, I'd be happy to help. A list of initial questions via email
> would be best to start out with since it may take a variety of
> different folks to answer them. Then we could follow up with a taped
> interview if you'd like to fill in any gaps.
>
> Jody
>
>
> -----Original Message-----
> From: bill mitzel [mailto:dcmag@orbitcom.biz]
> Sent: Friday, June 03, 2011 10:39 AM
> To: Farhat, Jody S NWD02
> Subject: Interview Request
>
> Jody... I'm Bill Mitzel, editor/publisher of Dakota Country magazine
> out of Bismarck, ND. We're a monthly hunting/fishing magazine, as you
> probably know. We publish monthly news summaries by the department
> each month.
> I'd like to do an interview with you, or someone else deemed
> appropriate, for our upcoming July issue. It could be a taped phone
> interview (preferred) or I could send a list of questions by email.
> What I'm interested in is a feature that entails what's happening here
> with the system, why it's happening, how did it get this bad. Frankly
> Jody, as you know, there are a huge number of angry people about this
> all. I'm looking to launch and attack on the Corps with this, just
> needing some answers that people are asking. There will be some tough
> questions. Wondering if you can help. Thanks very much.
> Bill Mitzel
> Dakota Country magazine
>
>
> Classification: UNCLASSIFIED
> Caveats: NONE
>
>
>

[redacted] NWO

From: [redacted] NWO
Sent: Friday, June 03, 2011 11:49 AM
To: [redacted] NWD; [redacted] NWD
Cc: Farhat, Jody S NWD02
Subject: WM Update - 6-3-11 (UNCLASSIFIED)
Attachments: NWD Missouri Basin Update - 060311.pptx

Classification: UNCLASSIFIED
Caveats: NONE

Ray,

Today's Update is attached. Sorry about yesterday.

[redacted]
Missouri River Basin Water Management Division Northwestern Division Corps of Engineers
[redacted]
[redacted]@usace.army.mil

Classification: UNCLASSIFIED
Caveats: NONE

Missouri River Basin Stages

3 June 2011

US Army Corps of Engineers
BUILDING STRONG®

	Station	Flood Stage	Current Stage	Likely Range of Highest* Flows/Stages		Projected Date **	Record Stage (Year)
A	Bismarck	16	16.8	150 kcfs 20.6		June 19	
B	Pierre	15	15.3	150 kcfs 18.7		June 7	
C	Yankton	20	20.0	150 kcfs n/a	 n/a	June 14	
D	Sioux City	30	28.6	170 kcfs 35	200 kcfs 37	June 15	44.28 (1952)
E	Decatur	35	33.6	175 kcfs 40	205 kcfs 42	June 15	43.5 (1943)
F	Blair	26.5	28.0	175 kcfs 30	205 kcfs 32	June 15	33.5 (1952)
G	Omaha	29	29.4	175 kcfs 34	210 kcfs 36	June 16	40.2 (1952)
H	Nebraska City	18	23.0	200 kcfs 27	250 kcfs 28+	June 16	27.19 (1993)
I	Brownville	33	39.1	205 kcfs 43	270 kcfs 44+	June 16	44.3 (1993)
J	Rulo	17	22.9	210 kcfs 25.5	290 kcfs 27+	June 17	26.63 (2010)
K	St. Joseph	17	21.9	215 kcfs 27	320 kcfs 32	June 17	32.07 (1993)
L	Atchison	22	24.9	215 kcfs 30	320 kcfs 34	June 17	31.63 (1993)
M	Leavenworth	20	20.6	215 kcfs 27	320 kcfs 33	June 17	35.34 (1993)

Missouri River Basin Stages

3 June 2011

US Army Corps of Engineers
BUILDING STRONG®

	Station	Flood Stage	Current Stage	Likely Range of Highest* Flows/Stages		Projected Date **	Record Stage (Year)
N	Kansas City	32	27.3	220 kcfs 30	350 kcfs 39	June 18	48.87 (1993)
O	Sibley	22	36.0	220 kcfs 28	350 kcfs 33	June 18	40.6 (1952)
P	Napoleon	17	22.2	220 kcfs 25	350 kcfs 29	June 18	28.86 (2007)
Q	Waverly	20	24.4	230 kcfs 27	370 kcfs 31	June 18	31.15 (1993)
R	Miami	18	22.6	235 kcfs 26	370 kcfs 30	June 19	32.6 (1993)
S	Glasgow	25	25.3	250 kcfs 32	410 kcfs 37	June 19	39.5 (1993)
T	Boonville	21	22.0	260 kcfs 27	420 kcfs 33	June 19	37.1 (1993)
U	Jefferson City	23	21.3	260 kcfs 27	430 kcfs 35	June 19	38.3 (1993)
V	Chamois	17	n/a	290 kcfs 24	450 kcfs 29	June 19	33.3 (1993)
W	Gasconade	22	24.8	300 kcfs 30	470 kcfs 35	June 19	39.6 (1993)
X	Hermann	21	22.5	300 kcfs 27	470 kcfs 33	June 20	36.97 (1993)
Y	Washington	20	19.0	300 kcfs 23	470 kcfs 32	June 20	35.4 (1993)
Z	St. Charles	25	25.1	300 kcfs 28	470 kcfs 37	June 20	40.04 (1993)

[redacted] NWO

From: bill mitzel [dcmag@orbitcom.biz]
Sent: Friday, June 03, 2011 10:39 AM
To: Farhat, Jody S NWD02
Subject: Interview Request

Jody... I'm Bill Mitzel, editor/publisher of Dakota Country magazine out of Bismarck, ND. We're a monthly hunting/fishing magazine, as you probably know. We publish monthly news summaries by the department each month.
I'd like to do an interview with you, or someone else deemed appropriate, for our upcoming July issue. It could be a taped phone interview (preferred) or I could send a list of questions by email.
What I'm interested in is a feature that entails what's happening here with the system, why it's happening, how did it get this bad. Frankly Jody, as you know, there are a huge number of angry people about this all. I'm looking to launch and attack on the Corps with this, just needing some answers that people are asking. There will be some tough questions. Wondering if you can help. Thanks very much.
Bill Mitzel
Dakota Country magazine

[redacted] NWO

From: Ruch, Robert J COL NWO
Sent: Friday, June 03, 2011 10:11 AM
To: Blechinger, Erik T NWO; [redacted] NWD
Cc: Farhat, Jody S NWD02
Subject: Re: Flows without the dams

So for now - bluff to bluff will do.
V/R,
COL Bob Ruch
Message sent via my BlackBerry Wireless Device

----- Original Message -----
From: Blechinger, Erik T NWO
To: [redacted] NWD; McMahon, John R BG NWD
Cc: Ruch, Robert J COL NWO; Farhat, Jody S NWD02
Sent: Fri Jun 03 08:08:56 2011
Subject: Flows without the dams

Just a follow-up to your question yesterday about the flows without the dams. Talked with Jody and it is not as easy as just adding the inflows. It requires hydraulic modeling and she has been working it for w while. Will have an answer next week.

Erik

[redacted] NWO

From: Blechinger, Erik T NWO
Sent: Friday, June 03, 2011 10:09 AM
To: [redacted] NWD; McMahon, John R BG NWD
Cc: Ruch, Robert J COL NWO; Farhat, Jody S NWD02
Subject: Flows without the dams

Just a follow-up to your question yesterday about the flows without the dams. Talked with Jody and it is not as easy as just adding the inflows. It requires hydraulic modeling and she has been working it for w while. Will have an answer next week.

Erik

[redacted] NWO

From: [redacted] NWO
Sent: Friday, June 03, 2011 9:54 AM
To: [redacted] NWD02; 'Tom Gurss'; [redacted] NWO; [redacted] NWK; [redacted] NWK
Cc: [redacted] NWD02; [redacted] NWO; [redacted] NWD02; Farhat, Jody S NWD02
Subject: RE: Update to Range of Flows and Stages, 2 Jun 2011 (UNCLASSIFIED)

I totally disagree with making the suggested changes at this time.

-----Original Message-----
From: [redacted] NWD02
Sent: Friday, June 03, 2011 9:43 AM
To: 'Tom Gurss'; [redacted] NWO; [redacted] NWO; [redacted] NWK; [redacted] NWK
Cc: [redacted] NWD02; [redacted] NWO; [redacted] NWD02; Farhat, Jody S NWD02
Subject: Update to Range of Flows and Stages, 2 Jun 2011 (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

PLEASE DO NOT FORWARD. THIS IS DRAFT.

All,

We've updated our 10 Missouri River rating curves below Gavins (SUX, DENE, OMA, NCNE, RUNE, STJ, MKC, WVMO, BNMO and HEMO) based on the this week's USGS measurements. Measurement information is on our website: http://www.nwd-mr.usace.army.mil/rcc/reports/qmeasurements2011.html

Attached is our adjusted stages based on the previously agreed upon flow range. Note the changes at Sioux City, Nebraska City, Rulo and St. Joseph.

Please review. Can we discuss this at the 11:00 teleconference?

[redacted]

[redacted].
Reservoir Regulation Team Lead
Missouri River Basin Water Management,
Northwestern Division, USACE
[redacted]
[redacted](fax)

-----Original Message-----
From: [redacted] NWD02
Sent: Friday, June 03, 2011 9:36 AM
To: [redacted] NWD02
Subject: updated sheets (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

[redacted]
USACE, Northwestern Division
Missouri Basin Water Management Division
[redacted]
[redacted]@usace.army.mil

Classification: UNCLASSIFIED
Caveats: NONE

Classification: UNCLASSIFIED
Caveats: NONE

[redacted] NWO

From: [redacted] NWD02
Sent: Friday, June 03, 2011 9:43 AM
To: 'Tom Gurss'; [redacted] NWO; [redacted] NWO; [redacted] NWK; [redacted] NWK
Cc: [redacted] NWD02; [redacted] NWO; [redacted] NWD02; Farhat, Jody S NWD02
Subject: Update to Range of Flows and Stages, 2 Jun 2011 (UNCLASSIFIED)
Attachments: Below Gavins - Range of Flows and Stages - 2Jun2011.pdf; Below Gavins - Levee Overtopping Stages - 2Jun2011.pdf

Classification: UNCLASSIFIED
Caveats: NONE

PLEASE DO NOT FORWARD. THIS IS DRAFT.

All,

We've updated our 10 Missouri River rating curves below Gavins (SUX, DENE, OMA, NCNE, RUNE, STJ, MKC, WVMO, BNMO and HEMO) based on the this week's USGS measurements. Measurement information is on our website: http://www.nwd-mr.usace.army.mil/rcc/reports/qmeasurements2011.html

Attached is our adjusted stages based on the previously agreed upon flow range. Note the changes at Sioux City, Nebraska City, Rulo and St. Joseph.

Please review. Can we discuss this at the 11:00 teleconference?

[redacted]

[redacted]
Reservoir Regulation Team Lead
Missouri River Basin Water Management,
Northwestern Division, USACE
[redacted]
[redacted] (fax)

-----Original Message-----
From: [redacted] NWD02
Sent: Friday, June 03, 2011 9:36 AM
To: [redacted] NWD02
Subject: updated sheets (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

[redacted].
USACE, Northwestern Division
Missouri Basin Water Management Division
[redacted]
[redacted]@usace.army.mil

Classification: UNCLASSIFIED

Caveats: NONE

Classification: UNCLASSIFIED
Caveats: NONE

Missouri River Federal Levee	Stream Gage Location *	Corps Gage ID	USGS Gage ID	Estimated Stage Minimum ft	Estimated Stage Maximum ft	Overtopping Stage ft
Omaha-Council Bluffs (Levee/Flood Wall)	Omaha	OMA	06610000	34	36	40.0
L624, L627	Omaha	OMA	06610000	34	36	35.0
L611-L614	Omaha	OMA	06610000	34	36	35.0
R613, R616	Omaha	OMA	06610000	34	36	35.0
L601	Nebraska City	NCNE	06806500	~~27~~ 26	above ~~28~~ 27 ***	25.4
L594	Nebraska City	NCNE	06806500	~~27~~ 26	above ~~28~~ 27 ***	26.0
L575	Nebraska City	NCNE	06806500	~~27~~ 26	above ~~28~~ 27 ***	27.0
R573	Nebraska City	NCNE	06806500	~~27~~ 26	above ~~28~~ 27 ***	27.0
R562	Nebraska City	NCNE	06806500	~~27~~ 26	above ~~28~~ 27 ***	25.5
R548	Brownville	BVNE	06810070	43	above 44 ***	44.0
L550	Brownville	BVNE	06810070	43	above 44 ***	42.8
L536	Brownville	BVNE	06810070	43	above 44 ***	44.3
R520	Rulo	RUNE	06813500	~~25.5~~ 25	above ~~27~~ 26 ***	27.0
MRLS 512-513-R (Rulo)	Rulo	RUNE	06813500	~~25.5~~ 25	above ~~27~~ 26 ***	30.5
MRLS 500-R (Iowa Pt.)	St. Joseph	STJ	06818000	~~27~~ 26.5	~~32~~ 31.5	32.0
MRLS 497-L (Forest City)	St. Joseph	STJ	06818000	~~27~~ 26.5	~~32~~ 31.5	33.0
MRLS 488-L (Forbes)	St. Joseph	STJ	06818000	~~27~~ 26.5	~~32~~ 31.5	32.0
MRLS 482-R (Doniphan Co.)	St. Joseph	STJ	06818000	~~27~~ 26.5	~~32~~ 31.5	36.0
MRLS 476-L (Amazonia)	St. Joseph	STJ	06818000	~~27~~ 26.5	~~32~~ 31.5	36.5
MRLS 471-460-R (Elwood)	St. Joseph	STJ	06818000	~~27~~ 26.5	~~32~~ 31.5	32.5
MRLS 455-L (So. St. Joe)	St. Joseph	STJ	06818000	~~27~~ 26.5	~~32~~ 31.5	34.0
MRLS 448-443-L (Rushville)	St. Joseph	STJ	06818000	~~27~~ 26.5	~~32~~ 31.5	37.5
MRLS 440-R (Atchison)	Atchison	ATCM	06818300	30	34	39.0
MRLS 408-L (Farley)	Leavenworth	N/A	N/A	27	33	34.0
MRLS 400-L (Waldron)	Leavenworth	N/A	N/A	27	33	34.0
MRLS 385-L (Riverside)	KCMO	MKC	06893000	30	39	53.5
Fairfax-Jersey Ck (KCK)	KCMO	MKC	06893000	30	39	52.5
North Kansas City Airport Unit	KCMO	MKC	06893000	30	39	51.0
North Kansas City Lower Unit	KCMO	MKC	06893000	30	39	52.5
CID-KS & MO (KCK)	KCMO	MKC	06893000	30	39	51.5
East Bottoms Unit (KCMo)	KCMO	MKC	06893000	30	39	52.5
Birmingham Unit (KCMo)	KCMO	MKC	06893000	30	39	52.0
MRLS 351-R, Section 1 (Atherton)	KCMO	MKC	06893000	30	39	50.5
MRLS 246-L (Brunswick)	Glasgow	GLMO	06906500	32	37	36.5
Lower Chariton River Levee District (Glasgow)	Glasgow	GLMO	06906500	32	37	37.5
New Haven	Hermann	HEMO	06934500	27	33	38.0

* NWS River Forecast

*** The upper ends of rating curves in the reach from Nebraska City to Rulo are very uncertain due to rapidly changing channel conditions from anticipated upstream and downstream levee overtoppings. Therefore, an estimate of the higher forecast stage was not computed.

Gavins Point Release of 150 kcfs

Stages are based on rating curves as of: **2-Jun-2011**

Please note changes from the 29-May-2011 bulletin.

The projected stages are based on the best available information at this time, and will be updated as conditions dictate. Many reaches of the river have not experienced flows this high since the dams were constructed; therefore, rating curves are quite uncertain. Additionally, levee breaches may have a significant impact on eventual stages.

Missouri River @	Flood Stage	Gage Datum *	w/ Incremental Flows **	
		ft NGVD 29	Likely Range of Flows with normal precipitation	
Sioux City	30	1056.98	170 kcfs	200 kcfs
	Stage		35	37
Decatur	35	1010.00	175 kcfs	205 kcfs
	Stage		~~40~~ 39	42
Blair	26.5	977.60	175 kcfs	205 kcfs
	Stage		30	32
Omaha	29	948.24	175 kcfs	210 kcfs
	Stage		34	36
Nebraska City	18	905.36	200 kcfs	250 kcfs
	Stage		~~27~~ 26	above ~~28~~ 27 ***
Brownville	33	860.00	205 kcfs	270 kcfs
	Stage		43	above 44 ***
Rulo	17	837.23	210 kcfs	290 kcfs
	Stage		~~25.5~~ 25	above ~~27~~ 26 ***
St. Joseph	17	788.19	215 kcfs	320 kcfs
	Stage		~~27~~ 26.5	~~32~~ 31.5
Atchison	22	762.20	215 kcfs	320 kcfs
	Stage		30	34
Leavenworth	20	742.20	215 kcfs	320 kcfs
	Stage		27	33

Kansas City	32	706.40	220 kcfs	350 kcfs
	Stage		30	39
Sibley	22	683.92	220 kcfs	350 kcfs
	Stage		28	33
Napoleon	17	680.24	220 kcfs	350 kcfs
	Stage	NAVD 88	25	29
Waverly	20	646.00	230 kcfs	370 kcfs
	Stage		27	31
Miami	18	621.35	235 kcfs	370 kcfs
	Stage		26	30
Glasgow	25	586.49	250 kcfs	410 kcfs
	Stage		32	37
Boonville	21	565.42	260 kcfs	420 kcfs
	Stage		27	33
Jefferson City	23	520.18	260 kcfs	430 kcfs
	Stage	NAVD 88	27	35
Chamois	17	502.50	290 kcfs	450 kcfs
	Stage		24	29
Gasconade	22	484.80	300 kcfs	470 kcfs
	Stage		30	35
Hermann	21	481.56	300 kcfs	470 kcfs
	Stage		27	33
Washington	20	457.97	300 kcfs	470 kcfs
	Stage	NAVD 88	23	32
St. Charles	25	413.47	300 kcfs	470 kcfs
	Stage		28	37

Notes:

* All gage datums are FT NGVD 29 unless otherwise indicated.

** Once we achieve a constant release of 150,000 cfs from Gavins Point, we expect the Missouri River to fluctuate between these likely forecasted flows. We do not expect to fall below the minimum flows once the full Gavins Point release begins. We have considered the June and July precipitation patterns of past years when defining the higher end of the likely range of flows. These estimates MAY be exceeded with precipitation patterns that are above normal.

*** The upper ends of rating curves in the reach from Nebraska City to Rulo are very uncertain due to rapidly changing channel conditions from anticipated upstream and downstream levee overtoppings. Therefore, an estimate of the higher forecast stage was

[redacted] NWO

From: Tony Mangan [news@todayskccr.com]
Sent: Friday, June 03, 2011 9:34 AM
To: Farhat, Jody S NWD02
Subject: RE: KSFY.... (UNCLASSIFIED)

Thank you.

-----Original Message-----
From: Farhat, Jody S NWD02 [mailto:Jody.S.Farhat@usace.army.mil]
Sent: Friday, June 03, 2011 9:27 AM
To: Tony Mangan
Subject: RE: KSFY.... (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

I apologize. I will do my best to ensure a more clear statement in the future.

-----Original Message-----
From: Tony Mangan [mailto:news@todayskccr.com]
Sent: Friday, June 03, 2011 9:25 AM
To: Farhat, Jody S NWD02
Subject: RE: KSFY.... (UNCLASSIFIED)

What bothers me is how unclear it was. Whether you mentioned the night before is irrelevant in my mind. In both the Pierre briefing and then again last night in the Corps briefing, this was not mentioned. The word from the Corps was the schedule was still in place and yet, this part of it was not mentioned on a regular basis. I am still trying to understand how you would not mention that on a consistent basis. To me that is a major component.

-----Original Message-----
From: Farhat, Jody S NWD02 [mailto:Jody.S.Farhat@usace.army.mil]
Sent: Friday, June 03, 2011 9:00 AM
To: Tony Mangan
Cc: Farmer, Monique L NWO
Subject: RE: KSFY.... (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

Water Management attempts to avoid making large increases in releases whenever possible so it was always our intension to make the increase in two increments. I apologize that we did not make this clear to our folks in the field or on the news conference last night, though I thought I mentioned it previous evening.

We believe this is the most prudent way to implement this release increase and we see no negative impact associated with operating in this manner.

Is there something that concerns you that we are unaware of?

Jody

-----Original Message-----
From: Tony Mangan [mailto:news@todayskccr.com]
Sent: Friday, June 03, 2011 8:20 AM
To: Farhat, Jody S NWD02
Subject: RE: KSFY.... (UNCLASSIFIED)

Did we miss this....but I don't remember this being in the news conference last night?

-----Original Message-----
From: Farhat, Jody S NWD02 [mailto:Jody.S.Farhat@usace.army.mil]
Sent: Friday, June 03, 2011 8:17 AM
To: Farmer, Monique L NWO; news@todayskccr.com
Subject: RE: KSFY.... (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

Yes, we will step up in 2 increments each day to the required release rate.
This will result in a more gradual increase in river stages in the Pierre area.

Jody Farhat, P.E.
Chief, Missouri River Basin Water Management

----Original Message-----
From: Farmer, Monique L NWO
Sent: Friday, June 03, 2011 6:26 AM
To: Farhat, Jody S NWD02
Subject: Fw: KSFY....

Jody???

From: Tony Mangan <news@todayskccr.com>
To: Farmer, Monique L NWO
Sent: Thu Jun 02 21:02:46 2011
Subject: KSFY....

Monque..
A Sioux Falls SD TV is reporting this tonight...this is the first time I have heard this at all. Is this true?
Action News has learned that the Army Corps of Engineers will release water from the Oahe Dam at two different times on Friday and Saturday.
Instead of releasing 15,000 cubic feet per second all at once tomorrow, the Army Corps will release 7,500 cubic feet per second at 8:00am and 7,500 cubic feet per second at 4:00pm.
This will be the same for Saturday. Instead of releasing 20,000 cubic feet per second all at once, 10,000 will be released at 8:00am and 10,000 at 4:00pm.

Classification: UNCLASSIFIED
Caveats: NONE

[redacted] NWO

From: Williamson, Eileen L NWO
Sent: Friday, June 03, 2011 9:32 AM
To: DLL-CENWO-EOC CMT-ALL; MRJIC; [redacted] NWO
Subject: RIVERWATCH - DAILY UPDATE - JUNE 3, 2011 (UNCLASSIFIED)
Attachments: Flood_Fight_Storyboard_3JUNa.docx

Classification: UNCLASSIFIED
Caveats: NONE

Please remember that the equipment and personnel information at the bottom of this email and the attached document are FOUO

Missouri River Mainstem Reservoir Bulletin (Updated 3 Jun; 0800 CDT)

Fort Peck(In operation since 1940)

Midnight Elevation

* 2250.0 ft msl

* 24-hr Change (+0.6 ft)

Daily Avg. Inflow

* 73,000 cfs (2 Jun)

* 73,000 cfs (1 Jun)

Daily Avg. Release

* 13,000 cfs (2 Jun)

* 9,600 cfs (1 Jun)

Annual Flood Ctrl & Multi-Use Zone (Elevation)

* 2234 ft msl - 2246 ft msl

Exclusive Flood Ctrl Zone (Elevation)

* 2246 ft msl - 2250 ft msl

Top of Spillway Gates

* 2250 ft msl

Planned Scheduled Releases (Subject to Change)

* Peak release will be 50,000 cfs by no later than mid June.

* Reservoir will use several feet of surcharge storage above the exclusive flood control pool as spillway gates are raised.

Record Flow (Year)

* 35,000 cfs (1975)

Projected Record Flow (Date)

* 50,000 cfs (Mid June)

Garrison(In operation since 1955)

Midnight Elevation

* 1853.8 ft msl

* 24-hr Change (+0.4 ft)

Daily Avg. Inflow

* 130,000 cfs (2 Jun)

* 131,000 cfs (1 Jun)

Daily Avg. Release

* 105,000 cfs (2 Jun)

* 91,300 cfs (1 Jun)

Annual Flood Ctrl & Multi-Use Zone (Elevation)

* 1837.5 ft msl - 1850 ft msl

Exclusive Flood Ctrl Zone (Elevation)

* 1850 ft msl - 1854 ft msl

Top of Spillway Gates

* 1854 ft msl

River Stage (Bismarck)

* 16.78 (0615 CDT 3 Jun)

* Flood stage - 16 ft

* 16.08 (0715 CDT 2 Jun)

Planned Scheduled Releases (Subject to Change)

* Releases will be stepped up to 150,000 cfs by mid June.

* Reservoir will use several feet of surcharge storage above exclusive flood control pool as spillway gates are raised.

* First time in history, spillway gates will be used to pass floodwaters.

Record Flow (Year)

* 65,000 cfs (1975)

Projected Record Flow (Date)

* 150,000 cfs (Mid June)

Oahe(In operation since 1962)

Midnight Elevation

* 1618.9 ft msl

* 24-hr Change (+0.1 ft)

Daily Avg. Inflow

* 100,000 cfs (2 Jun)

* 101,000 cfs (1 Jun)

Daily Avg. Release

* 86,900 cfs (2 Jun)

* 86,100 cfs (1 Jun)

Annual Flood Ctrl & Multi-Use Zone (Elevation)

* 1607.5 ft msl - 1620 ft msl

Exclusive Flood Ctrl Zone (Elevation)

* 1617 ft msl - 1620 ft msl

Top of Spillway Gates

* 1620 ft msl

River Stage (Pierre)

* 15.21 (0615 CDT 3 Jun)

* Flood stage - 15 ft

* 15.39 (0715 CDT 2 Jun)

Planned Scheduled Releases (Subject to Change)

* Releases will be stepped up to 150,000 cfs by mid June.

* Reservoir will peak within a foot of the top of the spillway gates at 1619 feet.

Record Flow (Year)

* 59,000 cfs (1997)

Projected Record Flow (Date)

* 150,000 cfs (Mid June)

Big Bend(In operation since 1964)

Midnight Elevation

* 1419.7 ft msl

* 24-hr Change (+0.2 ft)

Daily Avg. Inflow

* 82,000 cfs (2 Jun)

* 82,000 cfs (1 Jun)

Daily Avg. Release

* 77,900 cfs (2 Jun)

* 69,500 cfs (1 Jun)

Annual Flood Ctrl & Multi-Use Zone (Elevation)

* 1420 ft msl - 1423 ft msl

Exclusive Flood Ctrl Zone (Elevation)

* 1422 ft msl - 1423 ft msl

Top of Spillway Gates

* 1423 ft msl

Planned Scheduled Releases (Subject to Change)

* Releases will be stepped up to 150,000 cfs by mid June.

* Reservoir will remain essentially level at 1420 feet.

Record Flow (Date)

* 74,000 cfs (1997)

Projected Record Flow (Date)

* 150,000 cfs (Mid June)

Fort Randall(In operation since 1953)

Midnight Elevation

* 1360.0 ft msl

* 24-hr Change (+0.0 ft)

Daily Avg. Inflow

* 85,000 cfs (2 Jun)

* 86,000 cfs (1 Jun)

Daily Avg. Release

* 83,100 cfs (2 Jun)

* 79,900 cfs (1 Jun)

Annual Flood Ctrl & Multi-Use Zone (Elevation)

* 1350 ft msl - 1375 ft msl

Exclusive Flood Ctrl Zone (Elevation)

* 1365 ft msl - 1375 ft msl

Top of Spillway Gates

* 1375 ft msl

Planned Scheduled Releases (Subject to Change)

* Releases will be stepped up to 150,000 cfs by mid June.

Record Flow (Date)

* 67,000 cfs (1997)

Projected Record Flow (Date)

* 150,000 cfs (Mid June)

Gavins Point(In operation since 1955)

Midnight Elevation

* 1206.3 ft msl

* 24-hr Change (-0.2 ft)

Daily Avg. Inflow

* 83,000 cfs (2 Jun)

* 81,000 cfs (1 Jun)

Daily Avg. Release

* 83,700 cfs (2 Jun)

* 80,000 cfs (1 Jun)

Annual Flood Ctrl & Multi-Use Zone (Elevation)

* 1204.5 ft msl - 1210 ft msl

Exclusive Flood Ctrl Zone (Elevation)

* 1208 ft msl - 1210 ft msl

Top of Spillway Gates

* 1210 ft msl

Planned Scheduled Releases (Subject to Change)

* Releases will be stepped up to 150,000 cfs by mid June.

Record Flow (Date)

* 70,000 cfs (1997)

Projected Record Flow (Date)

* 150,000 cfs (Mid June)

Source of information: http://www.nwd-mr.usace.army.mil/rcc

Missouri River Mainstem 24-Hour Forecast Conditions (Updated 3 Jun; 0800 CDT)

****

24-hr forecast (Glasgow, MT)

Today: Showers likely, then showers and possibly a thunderstorm after noon. High near 57. Breezy, with a west wind between 22 and 26 mph, with gusts as high as 36 mph. Chance of precipitation is 80%.

Tonight: A 50 percent chance of showers before midnight. Mostly cloudy, with a low around 48. West northwest wind 18 to 21 mph decreasing to between 8 and 11 mph. Winds could gust as high as 26 mph.

Saturday: A 20 percent chance of showers and thunderstorms after noon. Mostly sunny, with a high near 68. Northwest wind around 7 mph.

****

24-hr forecast (Riverdale, ND)

Today: Mostly sunny, with a high near 70. Windy, with a west wind 9 to 12 mph increasing to between 28 and 31 mph. Winds could gust as high as 43 mph.

Tonight: Partly cloudy, with a low around 51. Breezy, with a west wind 23 to 26 mph decreasing to between 14 and 17 mph. Winds could gust as high as 38 mph.

Saturday: A slight chance of showers, with thunderstorms also possible after 1pm. Partly sunny, with a high near 69. West wind between 8 and 13 mph. Chance of precipitation is 20%.

****

24-hr forecast (Washburn, ND)

Today: Mostly sunny, with a high near 70. Windy, with a west wind 10 to 13 mph increasing to between 27 and 30 mph. Winds could gust as high as 41 mph.

Tonight: Partly cloudy, with a low around 50. Breezy, with a west wind 22 to 25 mph decreasing to between 11 and 14 mph. Winds could gust as high as 36 mph.

Saturday: A 20 percent chance of showers and thunderstorms after 1pm. Partly sunny, with a high near 70. West wind between 8 and 13 mph.

****

24-hr forecast (Bismarck/Mandan, ND)

Today: Mostly sunny, with a high near 73. Breezy, with a west wind 10 to 13 mph increasing to between 22 and 25 mph. Winds could gust as high as 36 mph.

Tonight: Partly cloudy, with a low around 50. Breezy, with a west wind between 11 and 21 mph, with gusts as high as 29 mph.

Saturday: A 20 percent chance of showers and thunderstorms after 1pm. Partly sunny, with a high near 73. West wind between 6 and 11 mph.

****

24-hr forecast (Pierre, SD)

Today: Mostly cloudy, then gradually becoming sunny, with a high near 77. Breezy, with a west northwest wind between 14 and 21 mph.

Tonight: Mostly clear, with a low around 50. Northwest wind between 8 and 13 mph.

Saturday: Sunny, with a high near 77. Northwest wind between 8 and 10 mph.

****

24-hr forecast (Ft. Pierre)

Today: Mostly cloudy, then gradually becoming sunny, with a high near 78. Breezy, with a west northwest wind between 14 and 20 mph.

Tonight: Mostly clear, with a low around 50. Northwest wind between 7 and 13 mph.

Saturday: Sunny, with a high near 78. Northwest wind between 7 and 10 mph.

****

24-hr forecast (Lower Brule, SD)

Today: Mostly cloudy, then gradually becoming sunny, with a high near 79. Northwest wind between 14 and 18 mph.

Tonight: Mostly clear, with a low around 52. Northwest wind between 7 and 10 mph.

Saturday: Sunny, with a high near 79. North northwest wind between 9 and 11 mph.

****

24-hr forecast (Chamberlain, SD)

Today: Sunny, with a high near 79. Breezy, with a northwest wind between 14 and 20 mph, with gusts as high as 28 mph.

Tonight: Mostly clear, with a low around 54. West northwest wind between 6 and 11 mph.

Saturday: Sunny, with a high near 79. North northwest wind between 8 and 10 mph.

****

24-hr forecast (Yankton, SD)

Today: Partly sunny, with a high near 81. West wind between 13 and 18 mph, with gusts as high as 26 mph.

Tonight: A slight chance of showers and thunderstorms after 4am. Partly cloudy, with a low around 58. Northwest wind between 7 and 10 mph becoming calm. Chance of precipitation is 20%.

Saturday: A slight chance of showers and thunderstorms before noon. Mostly sunny, with a high near 79. North northwest wind between 3 and 9 mph. Chance of precipitation is 20%.

****

24-hr forecast (Sioux City, IA)

Today: A chance of showers and thunderstorms before 9am. Partly sunny, with a high near 85. West southwest wind between 13 and 16 mph. Chance of precipitation is 30%.

Tonight: A chance of showers and thunderstorms, mainly after 4am. Mostly cloudy, with a low around 61. Northwest wind between 7 and 10 mph becoming calm. Chance of precipitation is 40%.

Saturday: A chance of showers and thunderstorms before noon. Partly sunny, with a high near 80. Calm wind becoming north between 6 and 9 mph. Chance of precipitation is 30%.

Source of information: http://www.weather.gov

****

24-hr forecast (Omaha, NE)

Today: Partly sunny, with a high near 90. Breezy, with a south southwest wind between 15 and 20 mph, with gusts as high as 28 mph.

Tonight: A 40 percent chance of showers and thunderstorms, mainly after 1am. Mostly cloudy, with a low around 65. North northwest wind between 3 and 10 mph. New rainfall amounts between a tenth and quarter of an inch, except higher amounts possible in thunderstorms.

Saturday: A 20 percent chance of showers and thunderstorms. Partly sunny, with a high near 83. North northeast wind between 9 and 14 mph, with gusts as high as 20 mph.

Source of information: http://www.weather.gov/

Internet: http://www.nwo.usace.army.mil

Facebook: http://www.facebook.com/OmahaUSACE

Twitter: http://www.twitter.com/OmahaUSACE

YouTube: http://www.youtube.com/OmahaUSACE

Flickr: http://www.flickr.com/photos/omahausace

ALL INFORMATION LISTED BELOW IS FOUO

Missouri River Flooding (Logistics) (Updated 3 Jun; 0800 CDT)

Personnel Deployed

* 4 (Glasgow, MT)
* 12 (Lander, WY)
* 16 (Bismarck, ND)
* 6 (Fort Yates, ND)
* 4 (Williston, ND)
* 1 (Minot, ND)
* 7 (Pierre, SD)
* 14 (Sioux City, IA)
* 2 (Missouri River Survey)
* 1 (Decatur, NE)
* 3 (Offutt, NE)
* 10 (North Platte, NE)
* 2 (Plattsmouth, NE)
* 1 (Kansas City, MO)

Equipment Deployed

HESCO

* Issued: 28,040 LF
* On Hand: 5610 (4840-4' and 770 LF of 3')
* Projected Outstanding Requirements: 52,000 LF
* Currently working on: 26,000 LF due in from Louisiana Friday / Saturday

Poly Rolls

* Issued: 1384 rolls
* On Hand: 80 rolls
* Projected Outstanding Requirements: 2500 rolls
* District Contracting obtained 1200 rolls, will be here by Jun 7
* Working additional 1500 rolls now

Pumps

* Issued: 12 pumps
* On Hand: ZERO
* Projected Outstanding Requirements: 12 pumps
* District Contracting working solicitations for 12 pumps

Additional Supplies due in:

* 1280 LF of RDFW from LA
* 1K ea 2K sandbags from LA

Sandbags:

* Issued: 12.1 M
* On Hand: 305,000.
* Projected Outstanding Requirements: 13.25 M
* Currently working on: 2 M due in tomorrow
* District Contracting has 2.5 M due in from Vendor Jun 8
* 650K due in from NWS.

Source of information: CMT Brief (1 Jun 11)

Classification: UNCLASSIFIED
Caveats: NONE

US Army Corps of Engineers
Omaha District

Missouri River Mainstem Reservoir Bulletin (Updated 3 Jun; 0800 CDT)

Fort Peck
(In operation since 1940)

Midnight Elevation
- 2250.0 ft msl
- 24-hr Change (+0.6 ft)

Daily Avg. Inflow
- 73,000 cfs (2 Jun)
- 73,000 cfs (1 Jun)

Daily Avg. Release
- 13,000 cfs (2 Jun)
- 9,600 cfs (1 Jun)

Annual Flood Ctrl & Multi-Use Zone (Elevation)
- 2234 ft msl – 2246 ft msl

Exclusive Flood Ctrl Zone (Elevation)
- 2246 ft msl – 2250 ft msl

Top of Spillway Gates
- 2250 ft msl

Planned Scheduled Releases (Subject to Change)
- Peak release will be 50,000 cfs by no later than mid June.
- Reservoir will use several feet of surcharge storage above the exclusive flood control pool as spillway gates are raised.

Record Flow (Year)
- 35,000 cfs (1975)

Projected Record Flow (Date)
- 50,000 cfs (Mid June)

Garrison
(In operation since 1955)

Midnight Elevation
- 1853.8 ft msl
- 24-hr Change (+0.4 ft)

Daily Avg. Inflow
- 130,000 cfs (2 Jun)
- 131,000 cfs (1 Jun)

Daily Avg. Release
- 105,000 cfs (2 Jun)
- 91,300 cfs (1 Jun)

Annual Flood Ctrl & Multi-Use Zone (Elevation)
- 1837.5 ft msl – 1850 ft msl

Exclusive Flood Ctrl Zone (Elevation)
- 1850 ft msl – 1854 ft msl

Top of Spillway Gates
- 1854 ft msl

River Stage (Bismarck)
- 16.78 (0615 CDT 3 Jun)
- Flood stage – 16 ft
- 16.08 (0715 CDT 2 Jun)

Planned Scheduled Releases (Subject to Change)
- Releases will be stepped up to 150,000 cfs by mid June.
- Reservoir will use several feet of surcharge storage above exclusive flood control pool as spillway gates are raised.
- First time in history, spillway gates will be used to pass floodwaters.

Record Flow (Year)
- 65,000 cfs (1975)

Projected Record Flow (Date)
- 150,000 cfs (Mid June)

Oahe
(In operation since 1962)

Midnight Elevation
- 1618.9 ft msl
- 24-hr Change (+0.1 ft)

Daily Avg. Inflow
- 100,000 cfs (2 Jun)
- 101,000 cfs (1 Jun)

Daily Avg. Release
- 86,900 cfs (2 Jun)
- 86,100 cfs (1 Jun)

Annual Flood Ctrl & Multi-Use Zone (Elevation)
- 1607.5 ft msl – 1620 ft msl

Exclusive Flood Ctrl Zone (Elevation)
- 1617 ft msl – 1620 ft msl

Top of Spillway Gates
- 1620 ft msl

River Stage (Pierre)
- 15.21 (0615 CDT 3 Jun)
- Flood stage – 15 ft
- 15.39 (0715 CDT 2 Jun)

Planned Scheduled Releases (Subject to Change)
- Releases will be stepped up to 150,000 cfs by mid June.
- Reservoir will peak within a foot of the top of the spillway gates at 1619 feet.

Record Flow (Year)
- 59,000 cfs (1997)

Projected Record Flow (Date)
- 150,000 cfs (Mid June)

Big Bend
(In operation since 1964)

Midnight Elevation
- 1419.7 ft msl
- 24-hr Change (+0.2 ft)

Daily Avg. Inflow
- 82,000 cfs (2 Jun)
- 82,000 cfs (1 Jun)

Daily Avg. Release
- 77,900 cfs (2 Jun)
- 69,500 cfs (1 Jun)

Annual Flood Ctrl & Multi-Use Zone (Elevation)
- 1420 ft msl – 1423 ft msl

Exclusive Flood Ctrl Zone (Elevation)
- 1422 ft msl – 1423 ft msl

Top of Spillway Gates
- 1423 ft msl

Planned Scheduled Releases (Subject to Change)
- Releases will be stepped up to 150,000 cfs by mid June.
- Reservoir will remain essentially level at 1420 feet.

Record Flow (Date)
- 74,000 cfs (1997)

Projected Record Flow (Date)
- 150,000 cfs (Mid June)

Fort Randall
(In operation since 1953)

Midnight Elevation
- 1360.0 ft msl
- 24-hr Change (+0.0 ft)

Daily Avg. Inflow
- 85,000 cfs (2 Jun)
- 86,000 cfs (1 Jun)

Daily Avg. Release
- 83,100 cfs (2 Jun)
- 79,900 cfs (1 Jun)

Annual Flood Ctrl & Multi-Use Zone (Elevation)
- 1350 ft msl – 1375 ft msl

Exclusive Flood Ctrl Zone (Elevation)
- 1365 ft msl – 1375 ft msl

Top of Spillway Gates
- 1375 ft msl

Planned Scheduled Releases (Subject to Change)
- Releases will be stepped up to 150,000 cfs by mid June.

Record Flow (Date)
- 67,000 cfs (1997)

Projected Record Flow (Date)
- 150,000 cfs (Mid June)

Gavins Point
(In operation since 1955)

Midnight Elevation
- 1206.3 ft msl
- 24-hr Change (-0.2 ft)

Daily Avg. Inflow
- 83,000 cfs (2 Jun)
- 81,000 cfs (1 Jun)

Daily Avg. Release
- 83,700 cfs (2 Jun)
- 80,000 cfs (1 Jun)

Annual Flood Ctrl & Multi-Use Zone (Elevation)
- 1204.5 ft msl – 1210 ft msl

Exclusive Flood Ctrl Zone (Elevation)
- 1208 ft msl – 1210 ft msl

Top of Spillway Gates
- 1210 ft msl

Planned Scheduled Releases (Subject to Change)
- Releases will be stepped up to 150,000 cfs by mid June.

Record Flow (Date)
- 70,000 cfs (1997)

Projected Record Flow (Date)
- 150,000 cfs (Mid June)

Source of information: http://www.nwd-mr.usace.army.mil/rcc

US Army Corps of Engineers
Omaha District

Missouri River Mainstem 24-Hour Forecast Conditions (Updated 3 Jun; 0800 CDT)

Fort Peck	Garrison	Oahe	Big Bend	Fort Randall	Gavins Point
24-hr forecast (Glasgow, MT) **Today:** Showers likely, then showers and possibly a thunderstorm after noon. High near 57. Breezy, with a west wind between 22 and 26 mph, with gusts as high as 36 mph. Chance of precipitation is 80%. **Tonight:** A 50 percent chance of showers before midnight. Mostly cloudy, with a low around 48. West northwest wind 18 to 21 mph decreasing to between 8 and 11 mph. Winds could gust as high as 26 mph. **Saturday:** A 20 percent chance of showers and thunderstorms after noon. Mostly sunny, with a high near 68. Northwest wind around 7 mph.	***24-hr forecast (Riverdale, ND)*** **Today:** Mostly sunny, with a high near 70. Windy, with a west wind 9 to 12 mph increasing to between 28 and 31 mph. Winds could gust as high as 43 mph. **Tonight:** Partly cloudy, with a low around 51. Breezy, with a west wind 23 to 26 mph decreasing to between 14 and 17 mph. Winds could gust as high as 38 mph. **Saturday:** A slight chance of showers, with thunderstorms also possible after 1pm. Partly sunny, with a high near 69. West wind between 8 and 13 mph. Chance of precipitation is 20%. ***24-hr forecast (Washburn, ND)*** **Today:** Mostly sunny, with a high near 70. Windy, with a west wind 10 to 13 mph increasing to between 27 and 30 mph. Winds could gust as high as 41 mph. **Tonight:** Partly cloudy, with a low around 50. Breezy, with a west wind 22 to 25 mph decreasing to between 11 and 14 mph. Winds could gust as high as 36 mph. **Saturday:** A 20 percent chance of showers and thunderstorms after 1pm. Partly sunny, with a high near 70. West wind between 8 and 13 mph.	***24-hr forecast (Pierre, SD)*** **Today:** Mostly cloudy, then gradually becoming sunny, with a high near 77. Breezy, with a west northwest wind between 14 and 21 mph. **Tonight:** Mostly clear, with a low around 50. Northwest wind between 8 and 13 mph. **Saturday:** Sunny, with a high near 77. Northwest wind between 8 and 10 mph. ***24-hr forecast (Ft. Pierre)*** **Today:** Mostly cloudy, then gradually becoming sunny, with a high near 78. Breezy, with a west northwest wind between 14 and 20 mph. **Tonight:** Mostly clear, with a low around 50. Northwest wind between 7 and 13 mph. **Saturday:** Sunny, with a high near 78. Northwest wind between 7 and 10 mph.	***24-hr forecast (Lower Brule, SD)*** **Today:** Mostly cloudy, then gradually becoming sunny, with a high near 79. Northwest wind between 14 and 18 mph. **Tonight:** Mostly clear, with a low around 52. Northwest wind between 7 and 10 mph. **Saturday:** Sunny, with a high near 79. North northwest wind between 9 and 11 mph.	***24-hr forecast (Chamberlain, SD)*** **Today:** Sunny, with a high near 79. Breezy, with a northwest wind between 14 and 20 mph, with gusts as high as 28 mph. **Tonight:** Mostly clear, with a low around 54. West northwest wind between 6 and 11 mph. **Saturday:** Sunny, with a high near 79. North northwest wind between 8 and 10 mph.	***24-hr forecast (Yankton, SD)*** **Today:** Partly sunny, with a high near 81. West wind between 13 and 18 mph, with gusts as high as 26 mph. **Tonight:** A slight chance of showers and thunderstorms after 4am. Partly cloudy, with a low around 58. Northwest wind between 7 and 10 mph becoming calm. Chance of precipitation is 20%. **Saturday:** A slight chance of showers and thunderstorms before noon. Mostly sunny, with a high near 79. North northwest wind between 3 and 9 mph. Chance of precipitation is 20%. ***24-hr forecast (Sioux City, IA)*** **Today:** A chance of showers and thunderstorms before 9am. Partly sunny, with a high near 85. West southwest wind between 13 and 16 mph. Chance of precipitation is 30%. **Tonight:** A chance of showers and thunderstorms, mainly after 4am. Mostly cloudy, with a low around 61. Northwest wind between 7 and 10 mph becoming calm. Chance of precipitation is 40%. **Saturday:** A chance of showers and thunderstorms before noon. Partly sunny, with a high near 80. Calm wind becoming north between 6 and 9 mph. Chance of precipitation is 30%.

Source of information: http://www.weather.gov

US Army Corps of Engineers
Omaha District

Missouri River Mainstem 24-Hour Forecast Conditions (Updated 3 Jun; 0800 CDT)

Fort Peck	Garrison	Oahe	Big Bend	Fort Randall	Gavins Point
	24-hr forecast (Bismarck/Mandan, ND) **Today:** Mostly sunny, with a high near 73. Breezy, with a west wind 10 to 13 mph increasing to between 22 and 25 mph. Winds could gust as high as 36 mph. **Tonight:** Partly cloudy, with a low around 50. Breezy, with a west wind between 11 and 21 mph, with gusts as high as 29 mph. **Saturday:** A 20 percent chance of showers and thunderstorms after 1pm. Partly sunny, with a high near 73. West wind between 6 and 11 mph.				***24-hr forecast (Omaha, NE)*** **Today:** Partly sunny, with a high near 90. Breezy, with a south southwest wind between 15 and 20 mph, with gusts as high as 28 mph. **Tonight:** A 40 percent chance of showers and thunderstorms, mainly after 1am. Mostly cloudy, with a low around 65. North northwest wind between 3 and 10 mph. New rainfall amounts between a tenth and quarter of an inch, except higher amounts possible in thunderstorms. **Saturday:** A 20 percent chance of showers and thunderstorms. Partly sunny, with a high near 83. North northeast wind between 9 and 14 mph, with gusts as high as 20 mph.

Source of information: http://www.weather.gov/
Internet: http://www.nwo.usace.army.mil
Facebook: http://www.facebook.com/OmahaUSACE
Twitter: http://www.twitter.com/OmahaUSACE
YouTube: http://www.youtube.com/OmahaUSACE
Flickr: http://www.flickr.com/photos/omahausace

US Army Corps of Engineers
Omaha District

Missouri River Flooding (Logistics) (Updated 3 Jun; 0800 CDT)

Personnel Deployed

- 4 (Glasgow, MT)
- 12 (Lander, WY)
- 16 (Bismarck, ND)
- 6 (Fort Yates, ND)
- 4 (Williston, ND)
- 1 (Minot, ND)
- 7 (Pierre, SD)
- 14 (Sioux City, IA)
- 2 (Missouri River Survey)
- 1 (Decatur, NE)
- 3 (Offutt, NE)
- 10 (North Platte, NE)
- 2 (Plattsmouth, NE)
- 1 (Kansas City, MO)

Equipment Deployed

HESCO

- Issued: 28,040 LF
- On Hand: 5610 (4840-4' and 770 LF of 3')
- Projected Outstanding Requirements: 52,000 LF
- Currently working on: 26,000 LF due in from Louisiana Friday / Saturday

Poly Rolls

- Issued: 1384 rolls
- On Hand: 80 rolls
- Projected Outstanding Requirements: 2500 rolls
- District Contracting obtained 1200 rolls, will be here by Jun 7
- Working additional 1500 rolls now

Pumps

- Issued: 12 pumps
- On Hand: ZERO
- Projected Outstanding Requirements: 12 pumps
- District Contracting working solicitations for 12 pumps

Additional Supplies due in:

- 1280 LF of RDFW from LA
- 1K ea 2K sandbags from LA

Sandbags:

- Issued: 12.1 M
- On Hand: 305,000.
- Projected Outstanding Requirements: 13.25 M
- Currently working on: 2 M due in tomorrow
- District Contracting has 2.5 M due in from Vendor Jun 8
- 650K due in from NWS.

Source of information: CMT Brief (1 Jun 11)

[redacted] NWO

From: [redacted] NWO
Sent: Friday, June 03, 2011 9:29 AM
To: CENWO-EOC NWO; Williamson, Eileen L NWO; [redacted] MVR
Cc: [redacted] NWO; [redacted] NWO; [redacted] NWO; Farhat, Jody S NWD02
Subject: Mainstem data for NWO sitrep 6/2/11 (Resend) (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

Note the pool elevation data are now in tenths.

Notes for data below: pool elevation is the midnight value; average inflows and average releases are average daily values; scheduled releases are the release from the project at the end of the day per yesterday's project orders.

Fort Peck Dam (MT)

6/2 Pool Elev: 2250.0 ft-msl

24-hr change: 0.6'

6/2 Ave Inflow: 73,000 cfs

6/2 Ave Release: 13,000 cfs

6/3 Scheduled Release: 20,000 cfs

Garrison Dam (ND)

6/2 Pool Elev: 1853.8 ft-msl

24-hr change: 0.4'

6/2 Ave Inflow: 130,000 cfs

6/2 Ave Release: 105,000 cfs

6/3 Scheduled Release: 115,000 cfs

Oahe Dam (SD)

6/2 Pool Elev: 1618.9 ft-msl

24-hr change: 0.1'

6/2 Ave Inflow: 100,000 cfs

6/2 Ave Release: 86,900 cfs

6/3 Scheduled Release: 100,000 cfs

Big Bend Dam (SD)

6/2 Pool Elev: 1419.7 ft-msl

24-hr change: 0.2'

6/2 Ave Inflow: 82,000 cfs

6/2 Ave Release: 77,900 cfs

6/3 Scheduled Release: 100,000 cfs

Fort Randall Dam (SD)

6/2 Pool Elev: 1360.0 ft-msl

24-hr change: 0.0'

6/2 Ave Inflow: 85,000 cfs

6/2 Ave Release: 83,100 cfs

6/3 Scheduled Release: 98,000 cfs

Gavins Point Dam (NE-SD)

6/2 Pool Elev: 1206.3 ft-msl

24-hr change: -0.2'

6/2 Ave Inflow: 83,000 cfs

6/2 Ave Release: 83,700 cfs

6/3 Scheduled Release: 85,000 cfs

[redacted]
Missouri River Basin Water Management Division Northwestern Division Corps of Engineers
[redacted]

[redacted]@usace.army.mil

Classification: UNCLASSIFIED
Caveats: NONE

Classification: UNCLASSIFIED
Caveats: NONE

Classification: UNCLASSIFIED
Caveats: NONE

Classification: UNCLASSIFIED
Caveats: NONE

Classification: UNCLASSIFIED
Caveats: NONE

[redacted] NWO

From: [redacted] NWO
Sent: Friday, June 03, 2011 9:25 AM
To: [redacted] NWO
Cc: Farhat, Jody S NWD02
Subject: Fw: mainstem data for NWO sitrep 6/2/11 (UNCLASSIFIED)

Go with a tenth.

----- Original Message -----
From: Williamson, Eileen L NWO
To: [redacted] NWO
Sent: Fri Jun 03 07:14:45 2011
Subject: RE: mainstem data for NWO sitrep 6/2/11 (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

No issues here.

-----Original Message-----
From: CENWO-EOC NWO
Sent: Friday, June 03, 2011 8:52 AM
To: [redacted] NWO; [redacted] NWO; [redacted] NWO; [redacted] NWO; [redacted] NWO; Williamson, Eileen L NWO
Subject: FW: mainstem data for NWO sitrep 6/2/11 (UNCLASSIFIED)

From: [redacted] NWO
Sent: Friday, June 03, 2011 8:52:13 AM
To: [redacted] NWO; CENWO-EOC NWO; Williamson, Eileen L NWO; [redacted] MVR
Cc: [redacted] NWO; [redacted] NWO; Farhat, Jody S NWD02
Subject: RE: mainstem data for NWO sitrep 6/2/11 (UNCLASSIFIED) Auto forwarded by a Rule

Classification: UNCLASSIFIED
Caveats: NONE

I think that's a great idea.

Eileen - any issues with going to a tenth of a foot?

[redacted]

-----Original Message-----
From: [redacted] NWO
Sent: Friday, June 03, 2011 8:48 AM
To: CENWO-EOC NWO; Williamson, Eileen L NWO; [redacted] MVR
Cc: [redacted] NWO; [redacted] NWO; [redacted] NWO; Farhat, Jody S NWD02
Subject: FW: mainstem data for NWO sitrep 6/2/11 (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

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24-hr change: 0.57'

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[redacted]
Missouri River Basin Water Management Division Northwestern Division Corps of Engineers
[redacted]
[redacted]r@usace.army.mil

Classification: UNCLASSIFIED
Caveats: NONE

[redacted] NWO

From: Tony Mangan [news@todayskccr.com]
Sent: Friday, June 03, 2011 9:25 AM
To: Farhat, Jody S NWD02
Subject: RE: KSFY.... (UNCLASSIFIED)

What bothers me is how unclear it was. Whether you mentioned the night before is irrelevant in my mind. In both the Pierre briefing and then again last night in the Corps briefing, this was not mentioned. The word from the Corps was the schedule was still in place and yet, this part of it was not mentioned on a regular basis. I am still trying to understand how you would not mention that on a consistent basis. To me that is a major component.

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From: Farhat, Jody S NWD02 [mailto:Jody.S.Farhat@usace.army.mil]
Sent: Friday, June 03, 2011 9:00 AM
To: Tony Mangan
Cc: Farmer, Monique L NWO
Subject: RE: KSFY.... (UNCLASSIFIED)

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Is there something that concerns you that we are unaware of?

Jody

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Subject: RE: KSFY.... (UNCLASSIFIED)

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Sent: Friday, June 03, 2011 8:17 AM
To: Farmer, Monique L NWO; news@todayskccr.com
Subject: RE: KSFY.... (UNCLASSIFIED)

Classification: UNCLASSIFIED
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Jody Farhat, P.E.
Chief, Missouri River Basin Water Management

----Original Message-----
From: Farmer, Monique L NWO
Sent: Friday, June 03, 2011 6:26 AM
To: Farhat, Jody S NWD02
Subject: Fw: KSFY....

Jody???

From: Tony Mangan <news@todayskccr.com>
To: Farmer, Monique L NWO
Sent: Thu Jun 02 21:02:46 2011
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Classification: UNCLASSIFIED
Caveats: NONE

Classification: UNCLASSIFIED
Caveats: NONE

[redacted] NWO

From: Matousek, Mike [Mike.Matousek@mail.house.gov]
Sent: Friday, June 03, 2011 9:03 AM
To: Farhat, Jody S NWD02; Blair, Amy E NWK; [redacted] NWK
Cc: Roe, Melissa
Subject: Technical Assistance - Time Sensitive

Hey Dave,

Congressman Graves is considering offering an amendment to the Energy and Water Appropriations Act for FY12 to amend the Flood Control Act of 1944 and/or the Missouri River Authorized Purposes Study. It would look something like this:

"None of the funds made available in this Act shall be used to optimize the benefits of recreation, water quality and fish and wildlife pursuant to the Flood Control Act of 1944 and/or the Missouri River Authorized Purposes Study."

Can you please provide technical feedback on this? I'll assume you know what we're getting at, but if not please give me a call at the number below. This is somewhat time sensitive, as the Energy and Water Appropriations bill is coming to the flood very soon.

Thanks for your help.

Mike

Mike Matousek

Legislative Director

Congressman Sam Graves (MO-06)

1415 Longworth HOB

Washington, DC 20515

(W) 202-225-7041

(F) 202-225-8221

[redacted] NWO

From: [redacted] NWO
Sent: Friday, June 03, 2011 8:52 AM
To: [redacted] NWO; CENWO-EOC NWO; Williamson, Eileen L NWO; [redacted] MVR
Cc: [redacted] NWO; [redacted] NWO; Farhat, Jody S NWD02
Subject: RE: mainstem data for NWO sitrep 6/2/11 (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

I think that's a great idea.

Eileen - any issues with going to a tenth of a foot?

[redacted]

-----Original Message-----
From: [redacted] NWO
Sent: Friday, June 03, 2011 8:48 AM
To: CENWO-EOC NWO; Williamson, Eileen L NWO; [redacted] MVR
Cc: [redacted] NWO; [redacted] NWO; [redacted] NWO; Farhat, Jody S NWD02
Subject: FW: mainstem data for NWO sitrep 6/2/11 (UNCLASSIFIED)

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Missouri River Basin Water Management Division Northwestern Division Corps of Engineers
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[redacted]@usace.army.mil

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[redacted] NWO

From: Farmer, Monique L NWO
Sent: Friday, June 03, 2011 8:20 AM
To: Farhat, Jody S NWD02
Subject: Fw:

From: Tony Mangan <news@todayskccr.com>
To: Farmer, Monique L NWO
Sent: Fri Jun 03 05:53:56 2011
Subject:

Monique….

I sent you a note late Thursday night about this TV story regarding how the Corps of Engineers is going to split the Friday's release into two - one in the morning and one in the afternoon.

I have now been told that is true. My question is …why wasn't the rest of the media informed? In no briefing yesterday, that I am aware of, was this mentioned. I am told some officials involved in the flooding response didn't know.

We have been people sitting on the edge out here and you folks decide to split the release in two and apparently not a lot of people were told. Can somebody explain that?

[redacted] NWO

From: Tony Mangan [news@todayskccr.com]
Sent: Friday, June 03, 2011 8:20 AM
To: Farhat, Jody S NWD02
Subject: RE: KSFY.... (UNCLASSIFIED)

Did we miss this....but I don't remember this being in the news conference last night?

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Jody Farhat, P.E.
Chief, Missouri River Basin Water Management

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Caveats: NONE

[redacted]

From: Farhat, Jody S NWD02
Sent: Friday, June 03, 2011 11:22 AM
To: bill mitzel
Cc: [redacted]
Subject: RE: Interview Request (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

[redacted] I'd be happy to help. A list of initial questions via email would be best to start out with since it may take a variety of different folks to answer them. Then we could follow up with a taped interview if you'd like to fill in any gaps.

Jody

-----Original Message-----
From: bill mitzel [mailto:dcmag@orbitcom.biz]
Sent: Friday, June 03, 2011 10:39 AM
To: [redacted]
Subject: Interview Request

Jody... I'm Bill Mitzel, editor/publisher of Dakota Country magazine out of Bismarck, ND. We're a monthly hunting/fishing magazine, as you probably know. We publish monthly news summaries by the department each month.
I'd like to do an interview with you, or someone else deemed appropriate, for our upcoming July issue. It could be a taped phone interview (preferred) or I could send a list of questions by email.
What I'm interested in is a feature that entails what's happening here with the system, why it's happening, how did it get this bad. Frankly Jody, as you know, there are a huge number of angry people about this all. I'm looking to launch and attack on the Corps with this, just needing some answers that people are asking. There will be some tough questions. Wondering if you can help. Thanks very much.
Bill Mitzel
Dakota Country magazine

Classification: UNCLASSIFIED
Caveats: NONE

[redacted]

From: [redacted]
Sent: Friday, June 03, 2011 12:56 PM
To: bill mitzel
Cc: [redacted]
Subject: RE: Interview Request (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

Bill,
Thanks for clarifying; I was hoping that was a typo. Appreciate your efforts to get accurate information out to your readers. My phone information is below, but it would be best for us to schedule a time in advance since I'm frequently tied up in other calls and meetings.

Thanks,
Jody

Jody Farhat, P.E.
Chief, Missouri River Basin Water Management

[redacted]

-----Original Message-----
From: bill mitzel [mailto:dcmag@orbitcom.biz]
Sent: Friday, June 03, 2011 12:44 PM
To: [redacted]
Subject: Re: Interview Request (UNCLASSIFIED)

Jody... thanks. I'll prepare a list of general questions I'll want to ask, then we can go from there. I hope to have those questions to you yet this afternoon or tonight, Saturday for sure and will touch bases with you on Monday. (That one sentence should have read "I'm NOT looking to launch an attack on the Corps.....). Thanks. Please give me a phone number to reach you on Monday.
Bill

On Jun 3, 2011, at 11:22 AM, Farhat, Jody S NWD02 wrote:

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[redacted]

From: Farhat, Jody S NWD02
Sent: Friday, June 03, 2011 5:39 PM
To: Tipton, Robert A Col NWD; [redacted] McMahon, John R BG NWD; Anderson, G Witt NWD; Ruch, Robert J COL NWO; [redacted]
Cc: [redacted]
Subject: WM Talking Points for 3 June stakeholder call (UNCLASSIFIED)
Attachments: 2011 Missouri River Flood Talking Points 3 Jun 2011.docx

Classification: UNCLASSIFIED
Caveats: NONE

FYSA

Jody Farhat, P.E.
Chief, Missouri River Basin Water Management

[redacted]

Classification: UNCLASSIFIED
Caveats: NONE

2011 Missouri River Flood Talking Points
Missouri River Water Management
3 June 2011

Releases

- Each day we update the reservoir forecast with new rain and snow runoff information
- When changes to the inflow forecasts occur, which they often do, it is necessary for us to make adjustments to the come-up schedules at the mainstem reservoirs to balance the impacts of changing conditions.
    - Also important to note is that changing conditions at any one of the mainstem dams will have a ripple effect on the other 5
- We will be updating our reservoir forecast daily and will be posting it on the web when it is complete, generally in the late afternoon. We encourage you to monitor the web site and participate in these daily calls to ensure you have the latest and best information available
- Important to note that any time a release change of 10,000 cfs or more is planned at one of the reservoirs, the releases may be stepped up incrementally throughout the day to avoid rapid changes in downstream river levels. If you have specific concerns or questions with the come-up schedule, please call our office.
- Planned and forecasted releases at the 6 dams based on the forecast we posted on the web this afternoon are as follows:
    - Fort Peck – we have sped up the come-up schedule at Fort Peck due to continued high inflows and will now reach our maximum release rate of 50,000 cfs by Tuesday of next week. Releases today 20,000 cfs, increasing to 30,000 cfs tomorrow, 40,000 cfs on Sunday and 50,000 cfs peak by next Tuesday.
    - Garrison –115,000 kcfs today, holding 115,000 cfs tomorrow, 120,000 cfs on Sunday, increasing to 130,000 cfs by early next week with an eventual peak of 150,000 cfs no later than mid-June
    - Oahe – today 100,000 cfs, increasing to 120,000 tomorrow in two steps, and then 10,000 cfs per day until release reach 150,000 cfs on Tuesday of next week. Each of the 10,000 cfs increases will be accomplished in two steps.
    - Big Bend – today 100,000 cfs, increasing to 120,000 tomorrow in two steps, and then 10,000 cfs per day until release reach 150,000 cfs on Tuesday of next week. Each of the 10,000 cfs increases will be accomplished in two steps.
    - Fort Randall – 98,000 cfs today, going to 107,000 cfs tomorrow in two steps, and then approximately 10,000 cfs per day until release reach 138,000 cfs on Tuesday of next week. Each of the 10,000 cfs increases will be accomplished in two steps. Releases will eventually reach 150,000 cfs no later than mid June
    - Gavins Point – 85,000 cfs today, going to 100,000 cfs tomorrow in two steps, and then approximately 10,000 cfs per day until release reach 140,000 cfs on Wednesday of next week. Each of the 10,000 cfs increases will be accomplished in two steps. Releases will eventually reach 150,000 cfs no later than mid June
    -
- It is important to remember that actual releases are based on conditions on the ground, which are subject to change.
- Bottom line is, the sooner we can reach these maximum release rates, the less risk there is that we'll have to go higher; once we have evacuated some storage in the reservoir system, we will have more flexibility to respond to changing conditions

Backup Information – for Q&A

- Forecast is based on best available information at this time
- Peak releases of 150 kcfs are certain for lower 5 dams, and could reach that level sooner than current projections if conditions in the upper basin deteriorate and could potentially go higher
- We have been following our operations procedures in the Master Manual
- What is anomalous this year is the record inflows to the upper reservoirs in May (see some data pasted below), coupled with very high snow pack, much of which snow water equivalent remains - i.e. inflow yet to come in Ft Peck and Garrison
- We have not been operating to control the Mississippi R. high flows (we have coordinated with LRD and MVD throughout the spring during their operation so they would know what was coming from Missouri system, but we do not have authority to operate the Missouri solely for Mississippi R purposes)
- We have not made operational decisions that were driven by ESA (nesting least terns and piping plovers), rather, we have been operating for flood risk reduction.
- May 2011 inflow above Sioux City was 10.5 MAF; Previous record May inflow was 7.2 MAF (1995)
    - May 2011 inflow into Fort Peck was 2.9 MAF; previous May FTPK record was 2.6 MAF (1975)
    - May 2011 inflow into Garrison was 4.4 MAF; previous May GARR record was 2.8 MAF (1978)
- The May 2011 monthly inflow of 10.5 MAF is the 2nd highest monthly total from 1898-2011, exceeded only in April 1952 (13.2 MAF)
- Data on snow water equivalent:
    - Ft Peck - crested at 136% of normal peak; currently 100% of normal peak
    - Garrision - crested at 141% of peak; currently 124% of normal peak
- Previous Record Releases
    - Fort Peck 35 kcfs in 1975
    - Garrison 65 kcfs in 1975
    - Oahe 59 kcfs in 1997
    - Big Bend 74 kcfs in 1997
    - Fort Randall 67 kcfs in 1997
    - Gavins Point 70,000 cfs in 1997

[redacted]

From: Farhat, Jody S NWD02
Sent: Friday, June 03, 2011 5:59 PM
To: [redacted]
Cc: [redacted]
Subject: RE: Flood_Fight_Talking_Points_03June11.docx (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

[redacted] I would just remove the 3rd highlighted bullet about the spring pulse. We're trying to dispel rumors that we've been operating for birds or fish.

Below are the bullets on mainstem operation we provided to HQ:

* Mainstem Reservoir System has been operated in accordance with the Master Manual
* Release schedules have been coordinated with LRD and MVD, but we do not have authority to regulate the mainstem reservoir system solely for the benefit of the Mississippi River
* No operational decisions have been driven by ESA (nesting least terns and piping plovers); reservoirs have been operating for flood risk reduction.
* The full flood control capacity of the mainstem reservoir system was available at the start of the 2011 runoff season
* 2010 was 3rd highest runoff year on record; all 2010 flood water was evacuated prior to start of runoff
* High releases will continue through at least mid-August to evacuate stored flood water
* Goal is to evacuate reservoirs to provide time for damage assessment and repair prior to next year's runoff season

-----Original Message-----
From: [redacted]
Sent: Friday, June 03, 2011 5:19 PM
To: Farhat, Jody S NWD02; [redacted]
Cc: [redacted]
Subject: Flood_Fight_Talking_Points_03June11.docx (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

Jody:

My updates are highlighted in yellow. Please take a look at my spring pulse talking point. May need some polishing by you.

Thanks,

[redacted]

Classification: UNCLASSIFIED
Caveats: NONE

Classification: UNCLASSIFIED
Caveats: NONE

[redacted]

From: Farhat, Jody S NWD02
Sent: Friday, June 03, 2011 6:23 PM
To: [redacted]
Cc: [redacted]
Subject: Re: Flood_Fight_Talking_Points_03June11.docx (UNCLASSIFIED)

I would state emphatically that at no time this year did we operate for ESA (nesting terns and plovers or pallid sturgeon); reservoirs have been operating for flood risk reduction only.

----- Original Message -----
From: [redacted]
To: [redacted] Farhat, Jody S NWD02
Cc: [redacted]
Sent: Fri Jun 03 16:19:03 2011
Subject: RE: Flood_Fight_Talking_Points_03June11.docx (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

Lots of questions about the sandbar habitats for piping plover and least tern.

Corps personnel remain vigilant to continue saving lives, and we are asking the public to remain aware of the safety risks associated with flooding: high water on levees, flooded roads, rapidly flowing streams and environmental issues such as well contamination.

On the above bullet, this sounds odd try committed instead of vigilant. Take out the we after , and - it changes tense

Here is another point I used today that came up online.

- When we use the spillway gates are our dams, water is released from the bottom of the gates versus overtopping the gates. This process enables us to better manage releases from the reservoir.

-----Original Message-----
From: [redacted]
Sent: Friday, June 03, 2011 6:07 PM
To: Farhat, Jody S NWD02
Cc: [redacted]
Subject: Flood_Fight_Talking_Points_03June11.docx (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

Jody:

These are the only ones I updated. If you are good with these, the TPs should be ready to go.

[redacted]

***

- The Missouri River is operated to serve eight Congressionally-authorized purposes including water quality control, irrigation, navigation, hydropower, recreation, fish and wildlife, water supply and flood risk management.

- The Corps operates the Missouri River main stem reservoir system in alignment with the guidelines set forth in the Missouri River Master Manual.

- (In response to questions about spring pulse and pallid sturgeon) We are in flood fights all along the Missouri River basin and operating the river for flood risk reduction.

- High releases will continue through at least mid-August to evacuate stored flood water.

- Our goal is to evacuate reservoirs to provide time for damage assessment and repair prior to next year's runoff season.

Classification: UNCLASSIFIED
Caveats: NONE

Classification: UNCLASSIFIED
Caveats: NONE

[redacted]

From: Farhat, Jody S NWD02
Sent: Friday, June 03, 2011 7:14 PM
To: [redacted]
Subject: RE: Start of runoff (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

March 1 is a significant date since that's when we target to have the reservoirs drawn down. This year we reached the desired storage level in late January and had already started getting inflow in Feb, so we were a little above the target level on 1 March. But still it's true to say we had the full flood control capacity of the system available at the start of the runoff season. Folks may ask why we didn't try to evacuate that Feb runoff prior to March first, but the problem is with the ice - it's very difficult to make significant release increases when the river is iced over.

Hope you holding up okay. You guys out in the field have the toughest jobs working one-on-one with the impacted citizens. Thanks for the great job you do every day.

Hang in there,
Jody

-----Original Message-----
From: [redacted]
Sent: Friday, June 03, 2011 6:48 PM
To: Farhat, Jody S NWD02
Subject: Start of runoff

Isn't march 1 a significant date? Would it help to say that we were at or nearly at our target elev base of flood control for the season?

[redacted]

Classification: UNCLASSIFIED
Caveats: NONE

[redacted]

From: Farhat, Jody S NWD02
Sent: Friday, June 03, 2011 8:03 PM
To: [redacted]
Subject: Re: 2nd question about conference call (clarification)

We don't have an exact date but expect we will start cutting back on releases in mid August, but it could be later depending on the actual runoff. Also playing a role will be the pace at which we reduce releases and to what level. We will likely be evacuating some water until December, but we'd like to get the flows back within the channel for the fall months so we can assess the damage to levees and other infrastructure and make necessary repairs to be ready for what ever next year brings.

Sorry that we don't have a more specific answer right now.

[redacted]

From: [redacted]
To: Farhat, Jody S NWD02
Sent: Fri Jun 03 17:28:27 2011
Subject: Fw: 2nd question about conference call (clarification)

From: Molly Montag <MMontag@siouxcityjournal.com>
To: [redacted]
Sent: Fri Jun 03 16:42:18 2011
Subject: 2nd question about conference call (clarification)

On the call, I asked when South Sioux City could be dry again (once it floods…if the river rises to the level the corps thinks it will).

Jody Farhat said late August to early Fall.

By "Fall" did she mean September or a different month?

Thanks,

Molly Montag

Sioux City Journal

(712) 293-4228

mollymontag@siouxcityjournal.com

[redacted]

From: Farhat, Jody S NWD02
Sent: Friday, June 03, 2011 10:21 PM
To: [redacted]
Subject: Gavins come up

COL ruch called. Problems with the contractor at dakota dunes. They my be asking us to hold 100k for 2 more days to allow construction to complete. Would probably put foot or 2 of water in FTRA.

Your advise?

Jody

[redacted]

From: Farhat, Jody S NWD02
Sent: Friday, June 03, 2011 11:01 PM
To: Farhat, Jody S NWD02; [redacted]
Subject: IMPORTANT!!! Gavins come up change (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

COL Ruch called. There is an issue with the contractor at Dakota Dunes which caused them to ask us to hold 100,000 for an extra day (Sunday) before going up any further. Don't feel we have much choice here.

I told him we could probably put the extra water in FTRA and not mess with the Oahe and Bend releases, but I'm looking for your advice here. Per COL Ruch we may be able to accelerate the come-up schedule starting on Monday and make up the lost ground.

I'm going to call the FTRA operator tonight and tell them not to go up in the morning. We'll work out the details in the morning.

Jody

Classification: UNCLASSIFIED
Caveats: NONE

[redacted]

From: Farhat, Jody S NWD02
Sent: Friday, June 03, 2011 11:27 PM
To: [redacted]
Subject: Re: IMPORTANT!!! Gavins come up change (UNCLASSIFIED)

100 kcfs. We're holding releases at that rate for an extra day to allow the contractor more time.

Jody

----- Original Message -----
From: [redacted]
To: Farhat, Jody S NWD02
Sent: Fri Jun 03 21:13:41 2011
Subject: RE: IMPORTANT!!! Gavins come up change (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

Is that 100K cfs or $100K. Been dealing with numbers for various things today. Sorry.

-----Original Message-----
From: Farhat, Jody S NWD02
Sent: Friday, June 03, 2011 9:06 PM
To: [redacted]; Tipton, Robert A Col NWD; McMahon, John R BG NWD; [redacted] Ruch, Robert J COL NWO
Subject: FW: IMPORTANT!!! Gavins come up change (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

Sorry, I hit send before I had all the addresses in.

-----Original Message-----
From: Farhat, Jody S NWD02
Sent: Friday, June 03, 2011 11:01 PM
To: Farhat, Jody S NWD02; [redacted]
Subject: IMPORTANT!!! Gavins come up change (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

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Jody

Classification: UNCLASSIFIED
Caveats: NONE

Classification: UNCLASSIFIED
Caveats: NONE

B

Classification: UNCLASSIFIED
Caveats: NONE

[redacted]

From: Farhat, Jody S NWD02
Sent: Saturday, June 04, 2011 7:20 AM
To: [redacted]
Subject: Re: IMPORTANT!!! Gavins come up change (UNCLASSIFIED)

You can release it as long as you caveat it. We'll do our best to stick to that schedule, but it could change if something unexpected happens.

Jody

----- Original Message -----
From: [redacted]
To: Farhat, Jody S NWD02
Sent: Sat Jun 04 04:50:21 2011
Subject: RE: IMPORTANT!!! Gavins come up change (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

Thanks Jody, this will make all the difference. The goal here was to keep the higher water off a questionable dike as long as possible. I know you don't want to loose any additional storage at Randall or Gavins, and accelerating the later ramp up has its own pitfalls. The extra day gives is:100,100,110,120,130 through Thursday at Gavins for completion. If there is a step to 150 a day or more quicker that can balance out the system early next week, we will be in the clear.

We will be having an 0800 breifing with the contractors working today, can we internally release the schedule at Gavins through Thursday to them for planning purposes?

[redacted]

-----Original Message-----
From: Farhat, Jody S NWD02
Sent: Friday, June 03, 2011 11:29 PM
To: [redacted]
Subject: Fw: IMPORTANT!!! Gavins come up change (UNCLASSIFIED)

Fyi, missed you on the original distribution.

----- Original Message -----
From: Farhat, Jody S NWD02
To: Farhat, Jody S NWD02; [redacted]
Sent: Fri Jun 03 21:01:04 2011
Subject: IMPORTANT!!! Gavins come up change (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

COL Ruch called. There is an issue with the contractor at Dakota Dunes which caused them to ask us to hold 100,000 for an extra day (Sunday) before going up any further. Don't feel we have much choice here.

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Jody

Classification: UNCLASSIFIED
Caveats: NONE

Classification: UNCLASSIFIED
Caveats: NONE

[redacted]

From: Farhat, Jody S NWD02
Sent: Saturday, June 04, 2011 7:23 AM
To: [redacted]
Subject: Re: IMPORTANT!!! Gavins come up change (UNCLASSIFIED)

If my math and memory are right, the change should put less than half a foot in FTRA, perhaps only 3 or 4 tenths. We'll run the model today and confirm.

Jody

----- Original Message -----
From: [redacted]
To: Farhat, Jody S NWD02; [redacted]
Sent: Sat Jun 04 05:13:45 2011
Subject: Re: IMPORTANT!!! Gavins come up change (UNCLASSIFIED)

You know the politics -

We'll do what we need to do.

----- Original Message -----
From: Farhat, Jody S NWD02
To: Farhat, Jody S NWD02; [redacted]
Sent: Fri Jun 03 21:01:04 2011
Subject: IMPORTANT!!! Gavins come up change (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

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Jody

Classification: UNCLASSIFIED
Caveats: NONE

[redacted]

From: Farhat, Jody S NWD02
Sent: Saturday, June 04, 2011 7:24 AM
To: [redacted]
Subject: Re: IMPORTANT!!! Gavins come up change (UNCLASSIFIED)

Sounds good

----- Original Message -----
From: Boyd, Paul M NWO
To: Farhat, Jody S NWD02
Cc: [redacted]
Sent: Sat Jun 04 05:21:43 2011
Subject: RE: IMPORTANT!!! Gavins come up change (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

Of course, nothing public, we will stay with the published scheduled one for public interaction. Just our three contractors who are managing their levee construction heights in reference to the water surface elevations need to know at this point.

[redacted]

-----Original Message-----
From: Farhat, Jody S NWD02
Sent: Saturday, June 04, 2011 7:20 AM
To: [redacted]
Subject: Re: IMPORTANT!!! Gavins come up change (UNCLASSIFIED)

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Jody

----- Original Message -----
From: [redacted]
To: Farhat, Jody S NWD02
Sent: Sat Jun 04 04:50:21 2011
Subject: RE: IMPORTANT!!! Gavins come up change (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

Thanks Jody, this will make all the difference. The goal here was to keep the higher water off a questionable dike as long as possible. I know you don't want to loose any additional storage at Randall or Gavins, and accelerating the later ramp up has its own pitfalls. The extra day gives is:100,100,110,120,130 through Thursday at Gavins for completion. If there is a step to 150 a day or more quicker that can balance out the system early next week, we will be in the clear.

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-----Original Message-----
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Sent: Friday, June 03, 2011 11:29 PM
To: [redacted]
Subject: Fw: IMPORTANT!!! Gavins come up change (UNCLASSIFIED)

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----- Original Message -----
From: Farhat, Jody S NWD02
To: Farhat, Jody S NWD02; [redacted]
Sent: Fri Jun 03 21:01:04 2011
Subject: IMPORTANT!!! Gavins come up change (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

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Jody

Classification: UNCLASSIFIED
Caveats: NONE

Classification: UNCLASSIFIED
Caveats: NONE

Classification: UNCLASSIFIED
Caveats: NONE

[redacted]

From: Farhat, Jody S NWD02
Sent: Saturday, June 04, 2011 10:11 AM
To: [redacted]
Subject: RE: Senator Johanns e-Update: Nebraska Flood Response (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

Agreed

-----Original Message-----
From: [redacted]
Sent: Saturday, June 04, 2011 9:51 AM
To: Farhat, Jody S NWD02
Subject: FW: Senator Johanns e-Update: Nebraska Flood Response (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

Jody:

Just FYI. I think we have been clear in our messaging regarding how we operate and the fact that we evacuated floodwaters all winter long. It is important that we keep pounding that message with the locals so there is no misunderstanding that this flooding has been caused by these heavy rains upstream.

[redacted]

-----Original Message-----
From: Mike_Johanns@Johanns.senate.gov [mailto:Mike_Johanns@Johanns.senate.gov]
Sent: Saturday, June 04, 2011 12:16 AM
To: [redacted]
Subject: Senator Johanns e-Update: Nebraska Flood Response

Senator Johanns e-Update<http://johanns.senate.gov/public/?a=Files.Serve&File_id=4bccd413-8116-4a12-8d33-127b17db2764>
Senator Johanns e-Update
June 3, 2011

Today I visited <http://johanns.senate.gov/public/?p=PressReleases&ContentRecord_id=2217b628-cb28-4bfa-8b9f-4cc10c011f67> some of the flood affected areas in Northeast Nebraska and the devastation is heartbreaking. In Ft. Calhoun and throughout Washington County, many have already been forced to evacuate as homes, businesses and fields are inundated with water. In South Sioux City, residents are preparing for the same by sandbagging and bracing to evacuate. State and local officials are doing a great job informing those affected, and I intend to do all I can to ascertain why it took so long to release the water upstream. I'm confident that the resolve of Nebraskans and our longstanding tradition of neighbor helping neighbor will pull us through this challenge, just as it always has during difficult times.

For more flood response information, I invite you to visit my Flood Response Webpage <http://johanns.senate.gov/public/index.cfm?p=spring-2011-flood-response> for updates on evacuation plans, shelters and flood protection efforts.

Pictures of Sen. Johanns' tour of flood affected areas can be found on Facebook <http://www.facebook.com/MikeJohanns>

To unsubscribe, email unsubscribe@johanns.senate.gov.

Classification: UNCLASSIFIED
Caveats: NONE

Classification: UNCLASSIFIED
Caveats: NONE

[redacted]

From: Farhat, Jody S NWD02
Sent: Saturday, June 04, 2011 10:20 AM
To: McMahon, John R BG NWD; [redacted] Tipton, Robert A Col NWD; [redacted]; Ruch, Robert J COL NWO
Cc: [redacted]; Farhat, Jody S NWD02
Subject: RE: IMPORTANT!!! Gavins come up change (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

Sir,
We have modified the Gavins Point come-up schedule in accordance with this request. The new schedule is shown below. Essentially we're inserting one additional day of 100 kcfs on Sunday, and then stepping up at the same rate previous planned - essentially 10 kcfs per day until we reach 140 kcfs on June 9. The schedule beyond the 140 kcfs is still subject to change when we run the model this afternoon. The extra day of 100 kcfs will put about 0.3 ft of water in Ft Randall. We are not making release changes at Oahe and Bend as a result of this change.

June 4: 100k
June 5: 100k
June 6: 110k
June 7: 120k
June 8: 130k
June 9: 140k
June 10: 145k
June 11: 145k
June 12: 145k
June 13: 145k
June 14: 150k

If you have any questions, let me know.

Jody

-----Original Message-----
From: McMahon, John R BG NWD
Sent: Friday, June 03, 2011 11:36 PM
To: Farhat, Jody S NWD02; [redacted]
Tipton, Robert A Col NWD; [redacted] Ruch, Robert J COL NWO
Subject: Re: IMPORTANT!!! Gavins come up change (UNCLASSIFIED)

Roger. Thanks. This is a smart "political" move IF it's supportable from a WM perspective--let me know what you assess in the Morning.
Vr/John McMahon

----- Original Message -----
From: Farhat, Jody S NWD02
To: [redacted] Tipton, Robert A Col NWD; McMahon, John R BG NWD; [redacted]; Ruch, Robert J COL NWO

Sent: Fri Jun 03 21:06:12 2011
Subject: FW: IMPORTANT!!! Gavins come up change (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

Sorry, I hit send before I had all the addresses in.

-----Original Message-----
From: Farhat, Jody S NWD02
Sent: Friday, June 03, 2011 11:01 PM
To: Farhat, Jody S NWD02; [redacted] S NWD
Subject: IMPORTANT!!! Gavins come up change (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

COL Ruch called. There is an issue with the contractor at Dakota Dunes which caused them to ask us to hold 100,000 for an extra day (Sunday) before going up any further. Don't feel we have much choice here.

I told him we could probably put the extra water in FTRA and not mess with the Oahe and Bend releases, but I'm looking for Mike and Joel's advice here. Per COL Ruch we may be able to accelerate the come-up schedule starting on Monday and make up the lost ground.

I'm going to call the FTRA operator tonight and tell them not to go up in the morning. We'll work out the details in the morning.

Jody

Classification: UNCLASSIFIED
Caveats: NONE

Classification: UNCLASSIFIED
Caveats: NONE

Classification: UNCLASSIFIED
Caveats: NONE

[redacted]

From: Farhat, Jody S NWD02
Sent: Saturday, June 04, 2011 10:44 AM
To: [redacted]
Cc: [redacted]
Subject: RE: Spillway Rating Table Update (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

No need to adjust gates. That's close enough.

-----Original Message-----
From: [redacted]
Sent: Saturday, June 04, 2011 10:42 AM
[redacted] Farhat, Jody S NWD02; [redacted]
Subject: RE: Spillway Rating Table Update (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

[redacted]

Ok, we will use the new tables and what is in the computer. All 16 gates are open 1.4 ft and the computer shows we are at 22,600 cfs. RCC can let us know if they want to lower gates 600 cfs. I hope it ok for today. The hydraulic jump moved downstream and is on the edge of the concrete apron. The erosion on the wing wall corners seems to be less. The force of the water seems to be more in the channel which may create bottom scouring, but that would be expected. I will send pictures this morning.

[redacted]

-----Original Message-----
From: [redacted]
Sent: Saturday, June 04, 2011 9:24 AM
To: [redacted]
Cc: [redacted]
Subject: FW: Spillway Rating Table Update (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

[redacted]

I spoke with [redacted] and [redacted] about this. Bottom line - we should be good. [redacted] received updated tables and rating curves from Hydro Branch ([redacted] group) and incorporated that information into PPCS. The old tables were from the 60's. The discharges at the various gate settings are calculated from this new information, and fall within a certain range of

accuracy/error. If you believe that something appears to be off considerably, from a downstream gaging station, etc., be sure to inform so that adjustments/tweaks can be made.

[redacted]

-----Original Message-----
From: [redacted]
Sent: Saturday, June 04, 2011 8:37 AM
To: [redacted]
Cc: [redacted]; Farhat, Jody S NWD02; [redacted]
Subject: RE: Spillway Rating Table Update (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

[redacted]

Can you run this one to ground, please.

Thanks,

[redacted]

-----Original Message-----
From: [redacted]
Sent: Saturday, June 04, 2011 8:20 AM
To: [redacted]
Cc: [redacted] Farhat, Jody S NWD02; [redacted]
Subject: FW: Spillway Rating Table Update (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

[redacted]

Can you check with [redacted] on these new tables? I was not aware they were changing. The new tables are about 1000 cfs less for the past days discharge. Today, at a 22,000 release they look pretty close. Do they match the Rating Curves that we have used for years? I want to make sure these spillway discharges are right.

[redacted]

-----Original Message-----
From: [redacted]
Sent: Friday, June 03, 2011 6:02 PM
To: [redacted]
Cc: [redacted]
Subject: FW: Spillway Rating Table Update (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

[redacted]

Make sure you keep Reservoir Control and Engineering Division in the loop on these. They must have accurate release information.

[redacted]

-----Original Message-----
From: [redacted]
Sent: Friday, June 03, 2011 5:06 PM
To: [redacted]
Subject: RE: Spillway Rating Table Update (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

We are now. Thanks.

[redacted]
Reservoir Regulation Team Lead
Missouri River Basin Water Management,
Northwestern Division, USACE
[redacted]

-----Original Message-----
From: [redacted]
Sent: Friday, June 03, 2011 3:41 PM
To: Farhat, Jody S NWD02; [redacted]
Subject: FW: Spillway Rating Table Update (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

All:

Are you all aware of this change?

[redacted]

-----Original Message-----
From: [redacted]
Sent: Friday, June 03, 2011 12:18 PM
To: [redacted]
Subject: Spillway Rating Table Update (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

The spillway rating table has been updated in ppcs as per the attached tables.

[redacted]
Electrical/PPCS Engineer
U.S. Army Corps of Engineers
Operations Division
[redacted]

[redacted]

From: Farhat, Jody S NWD02
Sent: Saturday, June 04, 2011 11:32 AM
To: Farhat, Jody S NWD02; McMahon, John R BG NWD; [redacted] Tipton, Robert A Col NWD; [redacted] Ruch, Robert J COL NWO
Cc: [redacted]
Subject: RE: IMPORTANT!!! Gavins come up change (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

Folks - Just an update to let you know that we're still working this. Please don't distribute until we finalize the plan.

Jody

-----Original Message-----
From: Farhat, Jody S NWD02
Sent: Saturday, June 04, 2011 10:20 AM
To: McMahon, John R BG NWD; [redacted] Tipton, Robert A Col NWD; [redacted] Ruch, Robert J COL NWO
Cc: [redacted]
Subject: RE: IMPORTANT!!! Gavins come up change (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

Sir,
We have modified the Gavins Point come-up schedule in accordance with this request. The new schedule is shown below. Essentially we're inserting one additional day of 100 kcfs on Sunday, and then stepping up at the same rate previous planned - essentially 10 kcfs per day until we reach 140 kcfs on June 9. The schedule beyond the 140 kcfs is still subject to change when we run the model this afternoon. The extra day of 100 kcfs will put about 0.3 ft of water in Ft Randall. We are not making release changes at Oahe and Bend as a result of this change.

June 4: 100k
June 5: 100k
June 6: 110k
June 7: 120k
June 8: 130k
June 9: 140k
June 10: 145k
June 11: 145k
June 12: 145k
June 13: 145k
June 14: 150k

If you have any questions, let me know.

Jody

-----Original Message-----
From: McMahon, John R BG NWD
Sent: Friday, June 03, 2011 11:36 PM
To: Farhat, Jody S NWD02; [redacted]
Tipton, Robert A Col NWD; [redacted] Ruch, Robert J COL NWO
Subject: Re: IMPORTANT!!! Gavins come up change (UNCLASSIFIED)

Roger. Thanks. This is a smart "political" move IF it's supportable from a WM perspective--let me know what you assess in the Morning.
Vr/John McMahon

----- Original Message -----
From: Farhat, Jody S NWD02
To: [redacted]; Tipton, Robert A Col NWD; McMahon, John R BG NWD; [redacted] Ruch, Robert J COL NWO
Sent: Fri Jun 03 21:06:12 2011
Subject: FW: IMPORTANT!!! Gavins come up change (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

Sorry, I hit send before I had all the addresses in.

-----Original Message-----
From: Farhat, Jody S NWD02
Sent: Friday, June 03, 2011 11:01 PM
To: Farhat, Jody S NWD02; [redacted]
Subject: IMPORTANT!!! Gavins come up change (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

COL Ruch called. There is an issue with the contractor at Dakota Dunes which caused them to ask us to hold 100,000 for an extra day (Sunday) before going up any further. Don't feel we have much choice here.

I told him we could probably put the extra water in FTRA and not mess with the Oahe and Bend releases, but I'm looking for Mike and Joel's advice here. Per COL Ruch we may be able to accelerate the come-up schedule starting on Monday and make up the lost ground.

I'm going to call the FTRA operator tonight and tell them not to go up in the morning. We'll work out the details in the morning.

Jody

Classification: UNCLASSIFIED
Caveats: NONE

Classification: UNCLASSIFIED

2011 Missouri River Flood Talking Points
Missouri River Water Management
4 June 2011

Releases

- Each day we update the reservoir forecast with new rain and snow runoff information
- When changes to the inflow forecasts occur, which they often do, it may be necessary for us to make adjustments to the come-up schedules at the mainstem reservoirs to balance the impacts of changing conditions.
    - Also important to note is that changing conditions at any one of the mainstem dams may have a ripple effect on the other 5
- We will be updating our reservoir forecast daily and will be posting it on the web when it is complete, generally in the late afternoon. We encourage you to monitor the web site and participate in these daily calls to ensure you have the latest and best information available
- Important to note that any time a release change of 10,000 cfs or more is planned at one of the reservoirs, the releases may be stepped up incrementally throughout the day to avoid rapid changes in downstream river levels. If you have specific concerns or questions with the come-up schedule, please call our office.
- Planned releases at the 6 dams based on the forecast we posted on the web this afternoon did not changed from yesterday's forecast. The releases are as follows:
    - Fort Peck –Releases today 30,000 cfs, increasing to 40,000 cfs tomorrow, 45,000 cfs on Monday and 50,000 cfs peak by Tuesday.
    - Garrison –Holding 115,000 cfs today, increasing to 120,000 cfs on Sunday ; holding that rate on Monday, and increasing to 130,000 cfs on Tuesday with an eventual peak of 150,000 cfs no later than mid-June. Increases of 10,000 cfs or more will generally be made in two steps.
    - Oahe –Releases today 120,000, and then 10,000 cfs per day until releases reach 150,000 cfs on Tuesday. Each of the 10,000 cfs increases will be accomplished in two steps.
    - Big Bend – Releases today 120,000, and then 10,000 cfs per day until releases reach 150,000 cfs on Tuesday. Each of the 10,000 cfs increases will be accomplished in two steps.
    - Fort Randall – 107,000 cfs today, going to 117,000 cfs tomorrow in two steps, and then approximately 10,000 cfs per day until release reach 138,000 cfs on Tuesday. Each of the 10,000 cfs increases will be accomplished in two steps. Releases will eventually reach 150,000 cfs no later than mid June.
    - Gavins Point – 100,000 cfs today, going to 110,000 cfs tomorrow in two steps, and then approximately 10,000 cfs per day until release reach 140,000 cfs on Wednesday. Each of the 10,000 cfs increases will be accomplished in two steps. Releases will eventually reach 150,000 cfs no later than mid June.

- The forecast is based on best available information at this time; actual releases are based on conditions on the ground, which are subject to change.
- Bottom line is, the sooner we can reach these maximum release rates, the less risk there is that we'll have to go higher; once we have evacuated some storage in the reservoir system, we will have more flexibility to respond to changing conditions

Backup Information – for Q&A

- Peak releases of 150 kcfs are certain for lower 5 dams, and could reach that level sooner than current projections if conditions in the upper basin deteriorate and releases could potentially go higher.
- We have been following our operations procedures in the Master Manual.
- Shouldn't you have released more water sooner? The full flood control capacity of the reservoir system was available at the start of the runoff season. This flood event was due to extraordinary rainfall in eastern Montana, Northern Wyoming and the western Dakota in May combined with additional mountain snowpack accumulation to record levels and a delayed melt. Our May 1 forecast which included projected snowmelt called for peak releases of 49,000 cfs from Garrison, 54,000 cfs from Oahe and 57,500 cfs from Gavins Point.
- Will this change the way the reservoir system is operated in future years? The reservoir system was operated in accordance with the Master Manual. The Master Manual Review and Update study analyzed the potential to provide additional flood control storage by lowering the top of the Carryover Multiple Use Zone. That alternative was studied but not selected.
- Did you store water to help out the flooding on the Mississippi River? We have not operated the mainstem system for the benefit of the Mississippi River. We did coordinate with LRD and MVD throughout the spring during their operation so they would know what was coming from Missouri system, but we do not have authority to operate the Missouri River reservoirs solely for Mississippi River purposes.
- We have not made operational decisions that were driven by ESA (nesting least terns and piping plovers), rather we have been operating for flood risk reduction.
- How long will these high flows last? High releases will continue through at least mid-August. We would like to have the bulk of the flood water evacuated by early fall so that flooded areas can dry out, and folks can inspect the damage and make necessary repairs to ensure we're ready for next year.
    - We don't have an exact schedule at this time. It will certainly depend on how the system of risk reduction measures performs with the high flows and conditions on the ground.
    - Our best guess at this time is that we may be able to start reducing releases in the mid-August timeframe.
- Why did this happen? What is anomalous this year is the record inflows to the upper reservoirs in May, coupled with very high snow pack, much of which snow water equivalent remains - i.e. inflow yet to come in Ft Peck and Garrison
- May 2011 inflow above Sioux City was 10.5 MAF; Previous record May inflow was 7.2 MAF (1995)
    - May 2011 inflow into Fort Peck was 2.9 MAF; previous May FTPK record was 2.6 MAF (1975)
    - May 2011 inflow into Garrison was 4.4 MAF; previous May GARR record was 2.8 MAF (1978)
- The May 2011 monthly inflow of 10.5 MAF is the 2nd highest monthly total from 1898-2011, exceeded only in April 1952 (13.2 MAF)
- Data on snow water equivalent:
    - Ft Peck - crested at 136% of normal peak; currently 99% of normal peak
    - Garrision - crested at 141% of peak; currently 116% of normal peak

- Previous Record Releases
  - Fort Peck 35 kcfs in 1975
  - Garrison 65 kcfs in 1975
  - Oahe 59 kcfs in 1997
  - Big Bend 74 kcfs in 1997
  - Fort Randall 67 kcfs in 1997
  - Gavins Point 70,000 cfs in 1997

[redacted] NWO

From: Tipton, Robert A Col NWD
Sent: Saturday, June 04, 2011 10:44 PM
To: [redacted] NWD; [redacted] NWD; [redacted] NWD; Farhat, Jody S NWD02; Blechinger, Erik T NWO; [redacted] NWD; [redacted] NWD; [redacted] NWD; [redacted] NWD; [redacted] NWD; [redacted] NWD
Cc: [redacted] NWD; [redacted] NWO; [redacted] NWK; [redacted] HQ@NWD
Subject: Re: Mississippi/Missouri Rivers Post-Flood Assessment Plan

Witt - concur, HQ is wise to take this on as there will be lots of questions and so this study is wise in that it should help us get out in front of the calls for such a study.

Seems to me that this may be the appropriate venue to also consider whether we need to relook our operations in terms of climate change as we were discussing the other day.

RT

Message sent via my BlackBerry Wireless Device

----- Original Message -----
From: [redacted] NWD
To: [redacted] NWD; [redacted] NWD; Farhat, Jody S NWD02; Blechinger, Erik T NWO; [redacted] NWD; [redacted] NWD; [redacted] NWD; [redacted] NWD; [redacted] NWD
Cc: Tipton, Robert A Col NWD; Hearn, James J NWD; Streckfuss, Ted H NWO; Iverson, Steven K NWK; [redacted] HQ@NWD
Sent: Sat Jun 04 19:16:01 2011
Subject: Fw: Mississippi/Missouri Rivers Post-Flood Assessment Plan

Please take a look. I reviewed this eve and my initial impression is this a very good approach. Can add lots of details, areas to address, specific questions....which could certainly be province of PgMP/PMPs.

Feed any thoughts to me and I'll get back with CG.

Those of you in the deep fight - no need to be distracted by this.

Thanks,

[redacted]

Message sent via my BlackBerry Wireless Device

----- Original Message -----
From: McMahon, John R BG NWD
To: [redacted] NWD
Sent: Sat Jun 04 13:24:58 2011
Subject: Fw: Mississippi/Missouri Rivers Post-Flood Assessment Plan

[redacted]
Please review. Thanks.
Vr/john

----- Original Message -----
From: Grisoli, William T MG HQ02
To: Walsh, Michael J MG MVD; Peabody, John W MG LRDOR; McMahon, John R BG NWD; Kula, Thomas BG SWD; Drolet, John D. COL LRDOR
Cc: Temple, Bo M MG HQ02; [redacted] HQ02; [redacted] HQ02; [redacted] HQ02; [redacted] HQ02; [redacted] HQ; [redacted] HQ02; [redacted] HQ02; [redacted] MVD; [redacted] HQ02; [redacted] L HQ02; [redacted] Theodore A HQ02
Sent: Sat Jun 04 12:28:54 2011
Subject: Mississippi/Missouri Rivers Post-Flood Assessment Plan

Commanders:

For the past two weeks, we have been investigating ways to initiate a comprehensive assessment and evaluation to repair and restore the MR&T System. We plan to have two components of this overall assessment: (1) Immediate action supporting repairing the overall system to pre-flood condition (one portion would consider the entire Mississippi River basin, and a separate review will be done of the upcoming Missouri River flood); and (2) Conducting a post flood assessment of system performance, including the operational decision-making process, with an outlook towards improving system operation. The entire effort will be guided by a Steering Committee composed of HQUSACE and MSC leaders (see the last page of the attached file for the proposed organization of the steering committee.).

The effort will utilize current authorities, policies, procedures, tools and terminology, and be conducted by USACE staff, supplemented by contracted staff, as appropriate, and generally follow the robust review and independence tenets of EC 1165-2-209. We are still working on a "straw-man" PMP that would guide the field's efforts and the details on staffing requirements.

I would appreciate your critical review and thoughts on this draft proposal. Resetting the system (emergency repairs) for the next high water period is a top priority of the HQs team followed by a deliberate, operational assessment of our system.

Please forward comments to Mike Ensch, James Dalton, Karen DA, Steve Stockton, and I.

V/R,
Bill

[redacted]NWO

From: Farmer, Monique L NWO
Sent: Saturday, June 04, 2011 8:02 PM
To: Farhat, Jody S NWD02; [redacted]NWO
Subject: Re: world-herald map question

???

From: Gaarder, Nancy <Nancy.Gaarder@owh.com>
To: Farmer, Monique L NWO
Cc: Stewart, Joanne <Joanne.Stewart@owh.com>
Sent: Sat Jun 04 17:16:18 2011
Subject: world-herald map question

Monique,

Based on the corps' maps, we've written this in our key, and I want to be sure it's correct:

There is no flood protection between Sioux City, Iowa, and Eppley Airfield.

Is that correct?

Please note that this is copied to my editor, Joanne Stewart, too, so could you please do "reply all" with the answer?

Joanne will be handling any sort of fix. Her direct line is 402-444-1101.

I'll be on my cell if you need me, 402-452-6602.

Thank you again for your help today.

Nancy

[redacted]
Omaha World-Herald
www.omaha.com <http://www.omaha.com/>

Nancy Gaarder
Reporter
Office: 402-444-1102
Fax: 402-444-1231
Email: Nancy.Gaarder@owh.com
1314 Douglas St.- Suite 700
Omaha, NE 68102

[redacted] NWO

From: [redacted] NWD
Sent: Saturday, June 04, 2011 7:13 PM
To: 'BAKER, RUSSELL J'
Cc: [redacted] NWO; [redacted] NWO; Blechinger, Erik T NWO; Farhat, Jody S NWD02; [redacted] NWD02; [redacted] NWD02
Subject: RE: Adding protection to levee at nebraska city station - usace notifications? (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

I assume OPPD is on the Levee District board and has coordinated that with the levee board.

I have shared your message with Kim Thomas, Chief of Emergency Management for the Corps, responsible for the federal inspection program for the Federal Levees as well as Non Federal levees in the federal levee program.

I included Dick Taylor, Operations Manager for the Missouri River Project Office, for his info.

Eric Blechinger is in charge of the Corps JIC team and will appreciate the info.

I also shared with Jodi, Kevin and Mike with the Water Management Team.

Not sure if any of these folks will contact you. Thanks for sharing as the information helps us understand all the flood fighting efforts in the basin.

[redacted]
[redacted]
[redacted] cell

-----Original Message-----
From: BAKER, RUSSELL J [mailto:rjbaker@oppd.com]
Sent: Saturday, June 04, 2011 8:33 AM
To: [redacted] NWD
Subject: Adding protection to levee at nebraska city station - usace notifications?

[redacted] we are placing a 3 1/2 foot aqua dam to the top of the levee around Neb city station. Do we need to notify anyone at the corps?

Thanks, Russ Baker

This e-mail contains Omaha Public Power District's confidential and proprietary information and is for use only by the intended recipient. Unless explicitly stated otherwise, this e-mail is not a contract offer, amendment, nor acceptance. If you are not the intended recipient you are notified that disclosing, copying, distributing or taking any action in reliance on the contents of this information is strictly prohibited.

Classification: UNCLASSIFIED
Caveats: NONE

[redacted] NWO

From: [redacted] NWD
Sent: Saturday, June 04, 2011 6:57 PM
To: Farhat, Jody S NWD02
Cc: Tipton, Robert A Col NWD
Subject: RE: Briefing for Sen Thune (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

Absolutely Jody. No hurry on this. Great job on the call as always.

Thank you to you and your team!

[redacted]

-----Original Message-----
From: Farhat, Jody S NWD02
Sent: Saturday, June 04, 2011 4:49 PM
To: [redacted] NWD
Cc: Tipton, Robert A Col NWD
Subject: Re: Briefing for Sen Thune (UNCLASSIFIED)

Would it be alright if I add it first thing in the morning? Was hoping to get home a bit earlier tonight.

Jody

----- Original Message -----
From: [redacted] NWD
To: Farhat, Jody S NWD02
Cc: Tipton, Robert A Col NWD
Sent: Sat Jun 04 16:19:40 2011
Subject: FW: Briefing for Sen Thune (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

Jody, a good thought. Maybe just show on existing slides w/ ref mark.

[redacted]

-----Original Message-----
From: Tipton, Robert A Col NWD
Sent: Saturday, June 04, 2011 3:49 PM
To: [redacted] NWD; [redacted] NWD
Subject: RE: Briefing for Sen Thune (UNCLASSIFIED)

[redacted]

This is a great little brief. I would recommend we add a slide that mirrors slide #4 and slide #6 that shows the elevations we were at in March when we entered the flood season...just to show that we were at the level we were supposed to be (we could probably just show these on the same slide by adding that reference point on each of the diagrams).

Bob

Robert A. Tipton, P.E.
COL, EN
Deputy Commander
Northwestern Division
U.S. Army Corps of Engineers

503-808-3701

-----Original Message-----
From: [redacted] NWD
Sent: Saturday, June 04, 2011 3:17 PM
To: Tipton, Robert A Col NWD; [redacted] NWD
Subject: FW: Briefing for Sen Thune (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

-----Original Message-----
From: Farhat, Jody S NWD02
Sent: Thursday, June 02, 2011 6:29 PM
To: [redacted] NWD
Cc: [redacted] NWD02; [redacted] NWD02; [redacted] NWO; [redacted] NWD; Blechinger, Erik T NWO
Subject: Briefing for Sen Thune (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

[redacted], below is a link to my part of the briefing for Sen. Thune.

I talked to Kim Thomas. She said that COL Ruch sent their part of the briefing to BG McMahon earlier this afternoon prior to his phone call with Thune.

ftp://ftp.usace.army.mil/usace/nwd/Mo%20Flooding/BG%20McMahon%202%20June%2011.pptx

Let me know if you have any questions or want any additional information. I'm heading home now, but will be available by phone in about 30 minutes.

VR,
Jody

Jody Farhat, P.E.
Chief, Missouri River Basin Water Management

jody.s.farhat@usace.army.mil
Office: 402-996-3840
Cell: 402-350-1417
[redacted]

[redacted] NWO

From: [redacted] NWD
Sent: Saturday, June 04, 2011 6:20 PM
To: Farhat, Jody S NWD02
Cc: Tipton, Robert A Col NWD
Subject: FW: Briefing for Sen Thune (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

Jody, a good thought. Maybe just show on existing slides w/ ref mark.

[redacted]

-----Original Message-----
From: Tipton, Robert A Col NWD
Sent: Saturday, June 04, 2011 3:49 PM
To: [redacted] NWD; [redacted] NWD
Subject: RE: Briefing for Sen Thune (UNCLASSIFIED)

[redacted],

This is a great little brief. I would recommend we add a slide that mirrors slide #4 and slide #6 that shows the elevations we were at in March when we entered the flood season...just to show that we were at the level we were supposed to be (we could probably just show these on the same slide by adding that reference point on each of the diagrams).

Bob

Robert A. Tipton, P.E.
COL, EN
Deputy Commander
Northwestern Division
U.S. Army Corps of Engineers

503-808-3701

-----Original Message-----
From: [redacted] NWD
Sent: Saturday, June 04, 2011 3:17 PM
To: Tipton, Robert A Col NWD; [redacted] NWD
Subject: FW: Briefing for Sen Thune (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

-----Original Message-----
From: Farhat, Jody S NWD02
Sent: Thursday, June 02, 2011 6:29 PM
To: [redacted] NWD
Cc: [redacted] NWD02; [redacted] NWD02; [redacted] NWO; [redacted] NWD; Blechinger, Erik T NWO

Subject: Briefing for Sen Thune (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

[redacted], below is a link to my part of the briefing for Sen. Thune.

I talked to Kim Thomas. She said that COL Ruch sent their part of the briefing to BG McMahon earlier this afternoon prior to his phone call with Thune.

ftp://ftp.usace.army.mil/usace/nwd/Mo%20Flooding/BG%20McMahon%202%20June%2011.pptx

Let me know if you have any questions or want any additional information. I'm heading home now, but will be available by phone in about 30 minutes.

VR,
Jody

Jody Farhat, P.E.
Chief, Missouri River Basin Water Management

jody.s.farhat@usace.army.mil
Office: 402-996-3840
Cell: 402-350-1417
[redacted]

Classification: UNCLASSIFIED
Caveats: NONE

Classification: UNCLASSIFIED
Caveats: NONE

Classification: UNCLASSIFIED
Caveats: NONE

[redacted] NWO

From: Quinn, Kevin R NWO
Sent: Saturday, June 04, 2011 5:42 PM
To: [redacted] NWO; [redacted] NWO; [redacted] NWO; Blechinger, Erik T NWO; Farhat, Jody S NWD02; Bertino, John J Jr NWO; Oldham, Margaret NWO; Jordano, James J LTC NWO
Cc: [redacted] NWO; Farmer, Monique L NWO
Subject: Senator Nelson Visit Sunday at 3 p.m. (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

Tomorrow at 3 pm, Senator Ben Nelson will visit the district. He will be greeted at the door by Erik Blechinger and Ted Streckfuss. They will accompany him to the EOC, where Kim Thomas will brief him. Erik, Ted, John Bertino and Jody Farhat should attend the briefing. Those working in the room may stay and work, but be advised that media may attend and it could get crowded.
After the briefing the Senator will be taken to the JIC before he departs.
PAO will escort any media to the EOC.

Questions?

Kevin Quinn
PAO Specialist
995-2419

-----Original Message-----
From: [redacted] NWO
Sent: Saturday, June 04, 2011 12:59 PM
To: Quinn, Kevin R NWO
Cc: Blechinger, Erik T NWO; [redacted] NWO; [redacted] NWO
Subject: RE: (UNCLASSIFIED)

Kevin - please go ahead and call Dayle Williamson. He is staffer handling the visit and he can articulate the media needs. His number is: Cell 4024506690. Work phone 4024413178.

[redacted]

-----Original Message-----
From: Quinn, Kevin R NWO
Sent: Saturday, June 04, 2011 12:17 PM
To: [redacted] NWO; [redacted] NWO
Subject: (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

[redacted] and [redacted]--I am handling PAO duties for Sen. Nelson visit. Please advise me as to whatever your PAO needs are. I may need to contact Nelson staffers-do you have a number of someone who is working it? Do you know if he is sending out a news release? I'd be interested in anything you can share about the visit.

Thanks kq
402-995-2419
402-779-1450

Classification: UNCLASSIFIED
Caveats: NONE

Classification: UNCLASSIFIED
Caveats: NONE

[redacted] NWO

From: Farhat, Jody S NWD02
Sent: Saturday, June 04, 2011 5:37 PM
To: Farhat, Jody S NWD02; Tipton, Robert A Col NWD; [redacted] NWD; McMahon, John R BG NWD; [redacted] NWD; Ruch, Robert J COL NWO; Blechinger, Erik T NWO
Cc: [redacted] NWD02; [redacted] NWD02; [redacted] NWO
Subject: WM Talking Points for 4 June stakeholder call (UNCLASSIFIED)
Attachments: 2011 Missouri River Flood Talking Points 4 Jun 2011.docx

Classification: UNCLASSIFIED
Caveats: NONE

FYSA

Jody Farhat, P.E.
Chief, Missouri River Basin Water Management

jody.s.farhat@usace.army.mil
Office: 402-996-3840
Cell: 402-350-1417
[redacted]

Classification: UNCLASSIFIED
Caveats: NONE

2011 Missouri River Flood Talking Points
Missouri River Water Management
4 June 2011

Releases

- Each day we update the reservoir forecast with new rain and snow runoff information
- When changes to the inflow forecasts occur, which they often do, it may be necessary for us to make adjustments to the come-up schedules at the mainstem reservoirs to balance the impacts of changing conditions.
    - Also important to note is that changing conditions at any one of the mainstem dams may have a ripple effect on the other 5
- We will be updating our reservoir forecast daily and will be posting it on the web when it is complete, generally in the late afternoon. We encourage you to monitor the web site and participate in these daily calls to ensure you have the latest and best information available
- Important to note that any time a release change of 10,000 cfs or more is planned at one of the reservoirs, the releases may be stepped up incrementally throughout the day to avoid rapid changes in downstream river levels. If you have specific concerns or questions with the come-up schedule, please call our office.
- Planned releases at the 6 dams based on the forecast we posted on the web this afternoon did not changed from yesterday's forecast. The releases are as follows:
    - Fort Peck –Releases today 30,000 cfs, increasing to 40,000 cfs tomorrow, 45,000 cfs on Monday and 50,000 cfs peak by Tuesday.
    - Garrison –Holding 115,000 cfs today, increasing to 120,000 cfs on Sunday ; holding that rate on Monday, and increasing to 130,000 cfs on Tuesday with an eventual peak of 150,000 cfs no later than mid-June. Increases of 10,000 cfs or more will generally be made in two steps.
    - Oahe –Releases today 120,000, and then 10,000 cfs per day until releases reach 150,000 cfs on Tuesday. Each of the 10,000 cfs increases will be accomplished in two steps.
    - Big Bend – Releases today 120,000, and then 10,000 cfs per day until releases reach 150,000 cfs on Tuesday. Each of the 10,000 cfs increases will be accomplished in two steps.
    - Fort Randall – 107,000 cfs today, going to 117,000 cfs tomorrow in two steps, and then approximately 10,000 cfs per day until release reach 138,000 cfs on Tuesday. Each of the 10,000 cfs increases will be accomplished in two steps. Releases will eventually reach 150,000 cfs no later than mid June.
    - Gavins Point – 100,000 cfs today, going to 110,000 cfs tomorrow in two steps, and then approximately 10,000 cfs per day until release reach 140,000 cfs on Wednesday. Each of the 10,000 cfs increases will be accomplished in two steps. Releases will eventually reach 150,000 cfs no later than mid June.

- The forecast is based on best available information at this time; actual releases are based on conditions on the ground, which are subject to change.
- Bottom line is, the sooner we can reach these maximum release rates, the less risk there is that we'll have to go higher; once we have evacuated some storage in the reservoir system, we will have more flexibility to respond to changing conditions

Backup Information – for Q&A

- Peak releases of 150 kcfs are certain for lower 5 dams, and could reach that level sooner than current projections if conditions in the upper basin deteriorate and releases could potentially go higher.
- We have been following our operations procedures in the Master Manual.
- Shouldn't you have released more water sooner? The full flood control capacity of the reservoir system was available at the start of the runoff season. This flood event was due to extraordinary rainfall in eastern Montana, Northern Wyoming and the western Dakota in May combined with additional mountain snowpack accumulation to record levels and a delayed melt. Our May 1 forecast which included projected snowmelt called for peak releases of 49,000 cfs from Garrison, 54,000 cfs from Oahe and 57,500 cfs from Gavins Point.
- Will this change the way the reservoir system is operated in future years? The reservoir system was operated in accordance with the Master Manual. The Master Manual Review and Update study analyzed the potential to provide additional flood control storage by lowering the top of the Carryover Multiple Use Zone. That alternative was studied but not selected.
- Did you store water to help out the flooding on the Mississippi River? We have not operated the mainstem system for the benefit of the Mississippi River. We did coordinate with LRD and MVD throughout the spring during their operation so they would know what was coming from Missouri system, but we do not have authority to operate the Missouri River reservoirs solely for Mississippi River purposes.
- We have not made operational decisions that were driven by ESA (nesting least terns and piping plovers), rather we have been operating for flood risk reduction.
- How long will these high flows last? High releases will continue through at least mid-August. We would like to have the bulk of the flood water evacuated by early fall so that flooded areas can dry out, and folks can inspect the damage and make necessary repairs to ensure we're ready for next year.
    - We don't have an exact schedule at this time. It will certainly depend on how the system of risk reduction measures performs with the high flows and conditions on the ground.
    - Our best guess at this time is that we may be able to start reducing releases in the mid-August timeframe.
- Why did this happen? What is anomalous this year is the record inflows to the upper reservoirs in May, coupled with very high snow pack, much of which snow water equivalent remains - i.e. inflow yet to come in Ft Peck and Garrison
- May 2011 inflow above Sioux City was 10.5 MAF; Previous record May inflow was 7.2 MAF (1995)
    - May 2011 inflow into Fort Peck was 2.9 MAF; previous May FTPK record was 2.6 MAF (1975)
    - May 2011 inflow into Garrison was 4.4 MAF; previous May GARR record was 2.8 MAF (1978)
- The May 2011 monthly inflow of 10.5 MAF is the 2nd highest monthly total from 1898-2011, exceeded only in April 1952 (13.2 MAF)
- Data on snow water equivalent:
    - Ft Peck - crested at 136% of normal peak; currently 99% of normal peak
    - Garrision - crested at 141% of peak; currently 116% of normal peak

- Previous Record Releases
  - Fort Peck 35 kcfs in 1975
  - Garrison 65 kcfs in 1975
  - Oahe 59 kcfs in 1997
  - Big Bend 74 kcfs in 1997
  - Fort Randall 67 kcfs in 1997
  - Gavins Point 70,000 cfs in 1997

[redacted] NWO

From: [redacted] NWO
Sent: Saturday, June 04, 2011 5:32 PM
To: [redacted] RC
Cc: MRJIC; Farhat, Jody S NWD02; [redacted] NWO
Subject: RE: Nebraska Public Radio (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

All:

Questions on channel response (e.g. erosion/deposition, degradation, etc.) should be passed onto myself and/or Dan Pridal. While there are some general trends, most questions will likely have to do with site specific issues (such as the Yankton question), and therefore there is no canned or general response.

Having said that the information below is provide or your situational awareness.

- We would expect the degradation trends below all of the dams, as well as the degradation in the channelized river at and below Sioux City, to be accelerated in the short-term, however, long-term trends may not be impacted. We will have to see.

- There should be no immediate significant impacts (positive or negative) on a system basis. However, there may be some localized impacts during the flood, and possibly some post flood impacts that will need to be addressed.

[redacted]

-----Original Message-----
From: [redacted] LRC
Sent: Saturday, June 04, 2011 5:19 PM
To: [redacted] NWO
Subject: RE: Nebraska Public Radio (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

Thank you, John. Just for monitoring purposes, what is the potential for or impact of this channel degradation?

-----Original Message-----
From: [redacted] NWO
Sent: Saturday, June 04, 2011 5:10 PM
To: Farhat, Jody S NWD02
Cc: [redacted] LRC
Subject: RE: Nebraska Public Radio (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

Just spoke with Mr. Napp. His question had to do with channel degradation in the Yankton area.

-----Original Message-----

From: Farhat, Jody S NWD02
Sent: Saturday, June 04, 2011 5:02 PM
To: [redacted] NWO
C[redacted] LRC
Subject: FW: Nebraska Public Radio (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

[redacted] - here's the number.

[redacted] is going to call him back. His one word answer on how these high flows will change the river was "profoundly"

-----Original Message-----
From: [redacted] LRC
Sent: Saturday, June 04, 2011 4:50 PM
To: Farhat, Jody S NWD02
Subject: Nebraska Public Radio (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

Jody, stopped by your office, but the door was closed. Fred Napp of Nebraska Public Radio had a question about the record releases somehow deepening the river banks (or something with composition changes). This inquiry was passed onto me by Monique. His number is 402-560-1438. Could you let me know if you could call him back, please?

[redacted]
Public Affairs Specialist
U.S. Army Corps of Engineers, Chicago District
111 N. Canal St., Chicago IL, 60606
[redacted]s@usace.army.mil
Office: [redacted]
Mobile: [redacted]
http://facebook.com/usacechicago
http://www.flickr.com/photos/usacechicago
Great Lakes and Mississippi River Interbasin Study (GLMRIS):
http://glmris.anl.gov
http://facebook.com/glmris

Classification: UNCLASSIFIED
Caveats: NONE

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Caveats: NONE

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Sent: Saturday, June 04, 2011 5:10 PM
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[redacted]@usace.army.mil
Office: [redacted]
Mobile: 31[redacted]

http://facebook.com/usacechicago
http://www.flickr.com/photos/usacechicago
Great Lakes and Mississippi River Interbasin Study (GLMRIS):
http://glmris.anl.gov
http://facebook.com/glmris

Classification: UNCLASSIFIED
Caveats: NONE

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Caveats: NONE

Classification: UNCLASSIFIED
Caveats: NONE

[redacted] NWO

From: [redacted] NWO
Sent: Saturday, June 04, 2011 4:51 PM
To: Farmer, Monique L NWO; Farhat, Jody S NWD02
Subject: Re: MSN.com article questions (UNCLASSIFIED)

NRCS or FEMA
[redacted]
Chief, Readiness Branch
[redacted]

----- Original Message -----
From: Farmer, Monique L NWO
To: Farhat, Jody S NWD02
Cc: [redacted] NWO
Sent: Sat Jun 04 14:46:37 2011
Subject: MSN.com article questions (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

Please help me respond. As far as programs in place to compensate or purchase land, wouldn't that come through FEMA (see below)...

-----Original Message-----
From: JEFF DEYOUNG [mailto:deyoungster4@msn.com]
Sent: Saturday, June 04, 2011 4:37 PM
To: Farmer, Monique L NWO
Subject: RE: Your questions (UNCLASSIFIED)

Okay, here is what I sent

You mentioned the 150,000 cfs flow would continue until at least August out of Gavins Point - that will likely flood a huge portion of Mills and Fremont Counties west of I-29 and down into Missouri - how long do you estimate it will take for the water to recede, and has there been any study as to the long-term damage it will cause to the farm ground in those areas? And, if the damage is irrevocable, is there a program in place to compensate or perhaps purchase this land?

Thanks for your time - I will be writing a story this weekend for our next week's issue, so if you could help me out, I would appreciate it.

Jeff DeYoung
Iowa Farmer Today/Missouri Farmer Today
(712) 520-3311

> Subject: RE: Your questions (UNCLASSIFIED)
> Date: Sat, 4 Jun 2011 15:36:46 -0500
> From: Monique.L.Farmer@usace.army.mil
> To: deyoungster4@msn.com

>
> Classification: UNCLASSIFIED
> Caveats: NONE
>
> We have not seen them. I am the media liaison and would be happy to
> chase then down for you.
>
> Monique
>
> -----Original Message-----
> From: JEFF DEYOUNG [mailto:deyoungster4@msn.com]
> Sent: Saturday, June 04, 2011 3:35 PM
> To: Farmer, Monique L NWO
> Subject: RE: Your questions (UNCLASSIFIED)
>
> I sent a couple of questions to the email address listed but did not
> get an answer back. I won't be able to be on the teleconference tonight or tomorrow.
> Hopefully someone sees them and can answer them.
>
>
>
>
>
>
> > Subject: Your questions (UNCLASSIFIED)
> > Date: Sat, 4 Jun 2011 14:39:48 -0500
> > From: Monique.L.Farmer@usace.army.mil
> > To: deyoungster4@msn.com
> >
> > Classification: UNCLASSIFIED
> > Caveats: NONE
> >
> > Jeff:
> >
> > Did you get your questions answered? What are they? There is another
> > press conference tonight at 6.
> >
> > V r,
> >
> > Monique Farmer
> > Chief, Media Relations
> > Missouri River Joint Information Center U.S. Army Corps of Engineers
> > Omaha District
> > (402) 779-1460
> >
> >
> > Classification: UNCLASSIFIED
> > Caveats: NONE
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> Classification: UNCLASSIFIED
> Caveats: NONE
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[redacted] NWO

From: [redacted] LRC
Sent: Saturday, June 04, 2011 4:50 PM
To: Farhat, Jody S NWD02
Subject: Nebraska Public Radio (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

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Great Lakes and Mississippi River Interbasin Study (GLMRIS):
http://glmris.anl.gov
http://facebook.com/glmris

Classification: UNCLASSIFIED
Caveats: NONE

[redacted] NWO

From: Blechinger, Erik T NWO
Sent: Saturday, June 04, 2011 4:49 PM
To: Farhat, Jody S NWD02
Subject: Fw: Think about ...

Ideas.....

Message sent via my BlackBerry Wireless Device

----- Original Message -----
From: McMahon, John R BG NWD
To: Blechinger, Erik T NWO; [redacted] NWD; [redacted] NWD
Cc: Ruch, Robert J COL NWO; Hofmann, Anthony J COL NWK
Sent: Fri Jun 03 20:18:39 2011
Subject: Think about ...

Erik:
We need a name for this Operation_____ and a D+ ___ count for every 1800 daily--intent is to remind folks to pace, to think long term, etc. Give me some ideas. Thanks.
Vr/John McMahon

[redacted] NWO

From: Farmer, Monique L NWO
Sent: Saturday, June 04, 2011 4:47 PM
To: Farhat, Jody S NWD02
Cc: [redacted] NWO
Subject: MSN.com article questions (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

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> Classification: UNCLASSIFIED
> Caveats: NONE
>
>

Classification: UNCLASSIFIED
Caveats: NONE

[redacted] NWO

From: Steven M Robinson [smrobins@usgs.gov]
Sent: Saturday, June 04, 2011 4:06 PM
To: [redacted] NWO; [redacted] NWO; Farhat, Jody S NWD02; [redacted] D NWD02; [redacted] NWO; Bertino, John J Jr NWO; Schenk, Kathryn M NWO; [redacted] NWD02; [redacted] NWD02; [redacted] NWO; [redacted] NWD02; [redacted] NWO; [redacted] NWO; [redacted] NWO; [redacted] NWO; [redacted] NWO; [redacted] NWO; gjwiche@usgs.gov; Bradley A Sether; smrobins@usgs.gov
Subject: Below garrison discharge measurement for June 4

discharge measurement today@ 1433
Q=121,500 cfs
width = 1800 ft
max depth 32.8 ft
max velocity about 7.8 fps
mean velocity about 3.7 fps

****
Steven M. Robinson
Chief, Hydrologic Records and Information Section North Dakota Water Science Center U. S. Geological Survey office 701-250-7404 cell 701-220-6309
****

[redacted] NWO

Subject: Senator Nelson Brief (UNCLASSIFIED)
Location: EOC 555

Start: Sun 6/5/2011 3:00 PM
End: Sun 6/5/2011 4:00 PM
Show Time As: Tentative

Recurrence: (none)

Meeting Status: Not yet responded

Organizer: [redacted] NWO
Required Attendees: Bertino, John J Jr NWO; [redacted] NWO; [redacted] NWO; Farhat, Jody S NWD02; [redacted] NWO; [redacted] NWO

Classification: UNCLASSIFIED
Caveats: NONE

Please join us in briefing Nebraska's Senator Nelson. We will cover why we have so much water and what we are doing about it in the State of Nebraska.

If you have any content that you want to make sure we cover, please pass it along to Terry Samson and myself.

Thanks - Chris

Classification: UNCLASSIFIED
Caveats: NONE

[redacted]NWO

From: Farmer, Monique L NWO
Sent: Saturday, June 04, 2011 3:36 PM
To: Williamson, Eileen L NWO
Cc: Oldham, Margaret NWO; [redacted] NWO; Farhat, Jody S NWD02
Subject: RE: No change to talking points today (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

Marlene has posted them everyday, except yesterday. She is taking care of this for me until my Web is set up again.

Erik could not get it to record yesterday so there wasn't one to post.

Monique

-----Original Message-----
From: Williamson, Eileen L NWO
Sent: Saturday, June 04, 2011 3:34 PM
To: Farmer, Monique L NWO
Cc: Oldham, Margaret NWO; [redacted] NWO; Farhat, Jody S NWD02
Subject: RE: No change to talking points today (UNCLASSIFIED)

Classification: UNCLASSIFIED
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Cc: Oldham, Margaret NWO; [redacted] NWO; Farhat, Jody S NWD02
Subject: RE: No change to talking points today (UNCLASSIFIED)

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Eileen:

Nancy Gaarder of the World Herald suggested that we post Col. Ruch's remarks right to our Web page following the press conference. Since it is recorded and posted to the Web, I do not see any harm in doing this. She also suggested that we maintain an archive of the press conferences as she would like to be able to drag them to iPod and review them as needed (I can have Marlene create a page for an archive). Just wanted to share her ideas.

She said having Col. Ruch's comments posted would prevent her from having to call several times throughout the day to get clarification for things she missed during the call. I would imagine other reporters would appreciate this as well.

Maggie, [redacted], Jody: Any issue with this?

V r,

Monique

-----Original Message-----
From: Williamson, Eileen L NWO
Sent: Saturday, June 04, 2011 3:28 PM
To: Farmer, Monique L NWO
Cc: Oldham, Margaret NWO; [redacted] NWO
Subject: RE: No change to talking points today (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

Please send the remarks after the daily press conference.
Using the one on the materials on facebook yesterday got a LOT of positive feedback.

-----Original Message-----
From: Farmer, Monique L NWO
Sent: Saturday, June 04, 2011 3:27 PM
To: Williamson, Eileen L NWO
Cc: Oldham, Margaret NWO; Thomas, Kimberly S NWO
Subject: No change to talking points today (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

All:

There will be no change to the talking points today.

V r,

Monique

Classification: UNCLASSIFIED
Caveats: NONE

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[redacted]NWO

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Caveats: NONE

Eileen:

Nancy Gaarder of the World Herald suggested that we post Col. Ruch's remarks right to our Web page following the press conference. Since it is recorded and posted to the Web, I do not see any harm in doing this. She also suggested that we maintain an archive of the press conferences as she would like to be able to drag them to iPod and review them as needed (I can have Marlene create a page for an archive). Just wanted to share her ideas.

She said having Col. Ruch's comments posted would prevent her from having to call several times throughout the day to get clarification for things she missed during the call. I would imagine other reporters would appreciate this as well.

Maggie, [redacted] Jody: Any issue with this?

V r,

Monique

-----Original Message-----
From: Williamson, Eileen L NWO
Sent: Saturday, June 04, 2011 3:28 PM
To: Farmer, Monique L NWO
Cc: Oldham, Margaret NWO; [redacted] NWO
Subject: RE: No change to talking points today (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

Please send the remarks after the daily press conference.
Using the one on the materials on facebook yesterday got a LOT of positive feedback.

-----Original Message-----
From: Farmer, Monique L NWO
Sent: Saturday, June 04, 2011 3:27 PM
To: Williamson, Eileen L NWO
Cc: Oldham, Margaret NWO; [redacted] NWO
Subject: No change to talking points today (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

All:

There will be no change to the talking points today.

V r,

Monique

Classification: UNCLASSIFIED
Caveats: NONE

Classification: UNCLASSIFIED
Caveats: NONE

Classification: UNCLASSIFIED
Caveats: NONE

[redacted] NWO

From: [redacted] NWK
Sent: Saturday, June 04, 2011 3:27 PM
To: [redacted] NWK; [redacted] NWO
Cc: [redacted] NWK; [redacted] NWK; [redacted] NWO; [redacted] NWO; Blechinger, Erik T NWO; [redacted] NWO; [redacted] NWK; [redacted] S NWO; [redacted] NWO; [redacted] NWO; Blair, Amy E NWK; [redacted] NWK; [redacted] NWO; [redacted] NWK; [redacted] NWO; [redacted] NWO; [redacted] NWO; [redacted] NWK; [redacted] D NWO; Williams, George; Farhat, Jody S NWD02; [redacted] NWO; [redacted] NWK
Subject: MRRP PgM Update -- week ending 3 June (UNCLASSIFIED)
Attachments: High Water Science.xlsx; Yellowstone 746.jpg

Classification: UNCLASSIFIED
Caveats: NONE

[redacted]nd [redacted],

General Information from the team this past week --

1 - USGS, MU & ISU partnering on a sturgeon response climate change model (3 yr effort). This model effort will include HEC-HMS components and may be applicable to terns and plovers as well. This model could provide interesting information relative to recovery efforts, so stay tuned for more updates at upcoming MRNRC meetings.

2 - High flow releases have altered ISP plans for FY11. The team has met with cooperating agencies and has formulated new strategies to take advantage of floodplain connectivity and associated physical, biological and chemical responses. In addition, from a fisheries standpoint, the system will continue to respond to this event for the next several years in terms of predator and prey dynamics. Only issue at the moment is access within the lower basin, and the team is working that issue as well. Some of the questions we are looking to answer in response are included in the attachment.

3 - I included a photo from Yellowstone of the coffer dam protecting Phase 1 at Intake. The flows at the time were 154K. Contractor is seeking a change in conditions but we are pushing back saying all flows and elevations had been provided even though they chose a lower level of protection.

4 - The SPDT met on 1 June to develop contingency workplan scenarios for the remainder of FY11. Real Estate purchases have slowed and concerned they may not materialize, and there is no need to construct ESH habitat. We have set 30 June as a check point for moving forward with contingency plans. In the meantime, the team is developing SOWs and contract packages so they can move on the green light.

5 - River access for sampling has become a concern. Late on Friday, Dave Hoover spoke with Casey Blosser, USCG Upper Mississippi Sector (314-269-2332) concerning NAVNOTICE #2569 and verified that the Safety Zone described in that notice applies only to recreational traffic and currently the river in that area is open to commercial navigation and it does not restrict government officials acting in their official capacity. George Williams and I shared this information with our state and federal partners and also reiterated that safety was our main concern. We are also seeking a POC within the USCG so that we might secure an exemption to continue to monitor on the river / floodplain in the event a complete closure is put in place. This may require a call / note from either COL Hofmann or Ruch so we'll keep you posted.

6 - Seth Laliberty shared that ... a few bullets from the pre-bid at Dalbey last Wednesday:

- The water table was very high and about 40-50% of the site is already underwater. The ag leasee will lose his planted crop of corn and wheat.
- Walnut Creek was within about 2' from the bottom of the railroad bridge.
- Meeting was attended by representatives from all four HUBZONE MATOC contractors on the IDIQ, as well as Kirk Thompson (KDWP), a nearby quarry owner, and 5 NWK folks (PM, CT, HR, and 2x CD).
- We drove the northern Walnut Creek levee out to the river (southern levee was too muddy) and walked out to the river to give contractors a general picture of chute entrance/exit conditions. We stood at the bank where there is normally a 15' drop and the water had risen to within 6" of the bank.
- Received several questions and will publish formal responses today. Most significant question was how we're going to account for groundwater in our "weather day" allowances.
- Bids are due by 1400 on 14 June. Lowest price is the only selection factor for responsive and acceptable bids.

FYI ...
1) Just got a report this morning that Montana Fish, Wildlife, and Parks have tracked two adult pallid sturgeon (1 male and 1 female) up the Milk River. They also captured a juvenile pallid in Milk.

2) Cathi Warren shared the following -- An article entitled "In Missouri River Recovery Discussions, Tribes have their say" was published this past week in the Indian Country Today. For a review of article, please see the following:
http://indiancountrytodaymedianetwork.com/2011/06/in-missouri-river-recovery-discussions-tribes-have-their-say/

3) George Williams share the latest update from the USGS blog ... "Rising Water" Posted on June 1, 2011.
Historic water levels on the Missouri River provide an excellent opportunity to document Pallid Sturgeon response to high flows. Accessing the flooded river to make these observations is challenging.

The Corps of Engineers has predicted that flooding on the upper part of the Lower Missouri River this coming week is going to be historic. As the projected 150,000 cfs release from Gavins Point Dam propagates downstream, it will add to streamflows (presently about 200,000 cfs) that are already near flood stage. This will result in prolonged high flows throughout the Lower Missouri River in June. These flows will come closer to mimicking the natural spring flood than any floods encountered since the USGS Comprehensive Sturgeon Research Project began documenting sturgeon responses to flows in 2004. Ironically, it may be too much water to deal with.

In this extraordinary year, we've seen two females already complete their spawning migrations by mid-late May, one around rivermile 217 and the other up the James River in South Dakota. We still have the potential to follow 4 reproductive females that were implanted and released near the Platte River, but it will be challenging to locate them acoustically during flood flows when they move along the banks and into vegetated areas. In addition, we face a fundamental logistical challenge in finding boat ramps that are open, and if open, unclogged by mud and woody debris. And, of course, high velocities and abundant transported debris severely complicate recapture and larval sampling. Although conditions may prevent us from tracking these fish during high water, the tags implanted in them will continue to record depth and temperature, and we will retrieve the data when the fish are recaptured later this year. These data provide key insights into what high water really means to a sturgeon.

This coming week we will attempt to deploy additional crews upstream of the Platte River with the hope of finding our reproductive females before water gets too high to work safely. We

are also actively tracking reproductive sturgeon on the Yellowstone River downstream of the Intake Diversion Dam in Montana and documenting depths and velocities along their migration routes.

4) The second round of topic-specific calls for the MRERP Social, Cultural and Economic Technical Teams will occur this coming week. Topics include: water supply and discharges (irrigation, thermal power, point source wastewater), recreation and conservation lands. Additional topics will be discussed the following week (developed lands and agriculture, cultural and historic sites, navigation, and hydropower).

Upcoming week ...
1) ASA(CW) visit on Monday - Tuesday in KC. Chance and I will be providing overview of MRRP during chopper flight on Tuesday;
2) Wed -- Holt County, MO meeting with COL H (?); topic of agr leasing and mitigation lands may be a topic;
3) Thur -- Chance will provide a briefing on sedimentation / MRRP during Kansas State Legislation tour;

Schedule:
Mon - Tue -- KC
Wed - Thur -- Omaha
Fri -- NWK picnic

Have a great weekend! As always, if you have any questions, please feel free to give me a shout!

[redacted]
Senior Program Manager
Missouri River Recovery Program
US Army Corps of Engineers
O: [redacted] (Kansas City)
O: [redacted] (Omaha)
C: [redacted]
[redacted]@usace.army.mil

Classification: UNCLASSIFIED
Caveats: NONE

High Water Science Opportunities

QUESTION

- Sediment Movement
- Reservoir Headwater Changes
- Change in River Channel Profile
- SWH maturation rates
- Temperature variation/change - channel/floodplain
- Emergent Sandbar Habitat
  - When created
  - Scour
- Latitudinal/Longitudinal extent of floodplain inundation
- Type of habitat inundated
  - Type of vegetation inundated
  - Depth of inundation
  - Duration of inundation
- Water quality impacts
- Floodplain Productivity (fish, inverts, plants)
- Change in River Productivity
- Temporal/Spatial use of floodplain by fishes
- Tributary Productivity (fish, inverts, plants)
- Tributary Faunal changes
- Changes in floodplain vegetation community
- Changes in soil fertility (ag and natural)
- Temporal Changes in Social Perspectives
- Value $ of ESH and SWH created
- Floodplain Soil accretions/erosions

[redacted] NWO

From: Farmer, Monique L NWO
Sent: Saturday, June 04, 2011 3:20 PM
To: Farhat, Jody S NWD02
Subject: RE: Is this correct? (UNCLASSIFIED)

Importance: High

Classification: UNCLASSIFIED
Caveats: NONE

I would say this:

This is the third year in a row the upper Missouri River has seen above average rain and snow. The corps has been flushing more water than normal from its dams since June 2010 to get ready for this spring's runoff. On March 1, the reservoirs were low enough to prepare for any anticipated flooding, according to the corps' modeling.

-----Original Message-----
From: Gaarder, Nancy [mailto:Nancy.Gaarder@owh.com]
Sent: Saturday, June 04, 2011 3:19 PM
To: Farmer, Monique L NWO
Subject: Is this correct?

This is the third year in a row the upper Missouri River has seen above average rain and snow. The corps has been flushing more water than normal from its dams since June 2010 to get ready for this spring's runoff. On March 1, the reservoirs were low enough to prevent any anticipated flooding, according to the corps' modeling.

[redacted]
Omaha World-Herald
www.omaha.com

Nancy Gaarder
Reporter
Office: 402-444-1102
Fax: 402-444-1231
Email: Nancy.Gaarder@owh.com
1314 Douglas St.- Suite 700
Omaha, NE 68102

-----Original Message-----
From: Farmer, Monique L NWO [mailto:Monique.L.Farmer@usace.army.mil]
Sent: Saturday, June 04, 2011 2:58 PM
To: Gaarder, Nancy
Subject: Rough estimate (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

State and local Ems would be the best source of info for how many homes will be impacted roughly. I can get you phone numbers if you need.

-----Original Message-----
From: Gaarder, Nancy [mailto:Nancy.Gaarder@owh.com]
Sent: Saturday, June 04, 2011 2:21 PM
To: Farmer, Monique L NWO
Subject: RE: thank you (UNCLASSIFIED)

A couple of hours?

Omaha World-Herald
www.omaha.com

Nancy Gaarder
Reporter
Office: 402-444-1102
Fax: 402-444-1231
Email: Nancy.Gaarder@owh.com
1314 Douglas St.- Suite 700
Omaha, NE 68102

-----Original Message-----
From: Farmer, Monique L NWO [mailto:Monique.L.Farmer@usace.army.mil]
Sent: Saturday, June 04, 2011 2:20 PM
To: Gaarder, Nancy
Subject: RE: thank you (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

Working on it. Deadline?

-----Original Message-----
From: Gaarder, Nancy [mailto:Nancy.Gaarder@owh.com]
Sent: Saturday, June 04, 2011 1:30 PM
To: Farmer, Monique L NWO
Subject: thank you

Hi Monique,

Thank you setting up today's review. It was extremely helpful.

I'll be done with my revisions probably in an hour or two, but in the meantime, my editor asks this question:

Does the corps have an estimate of the minimum number of people (or homes/businesses) that will be displaced?

Thank you again Monique,

Nancy

Omaha World-Herald
www.omaha.com <http://www.omaha.com/>

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Classification: UNCLASSIFIED
Caveats: NONE

Classification: UNCLASSIFIED
Caveats: NONE

Classification: UNCLASSIFIED
Caveats: NONE

[redacted] NWO

From: Farmer, Monique L NWO
Sent: Saturday, June 04, 2011 2:15 PM
To: Farhat, Jody S NWD02
Subject: FW: Invite to NOAA/FEMA Media Teleconference (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

Jody:

Do you have someone you could send? I know you are on the CMT call at this time.

-----Original Message-----
From: Christopher.Vaccaro@noaa.gov [mailto:Christopher.Vaccaro@noaa.gov]
Sent: Saturday, June 04, 2011 2:13 PM
To: Farmer, Monique L NWO
Subject: Invite to NOAA/FEMA Media Teleconference

Hi Monique-

NOAA/National Weather Service will host a media teleconference this Monday (1pm CT) to provide local and national reporters with an update on the Missouri River Basin flooding and we would very much welcome USACE participation.

NOAA/NWS speakers will be Lynn Maximuk, NWS Central Region Director; Noreen Schwein, NWS Central Region Hydrologist; Kevin Low, NWS Missouri Basin River Forecast Center Service Coordination Hydrologist.

FEMA Deputy Administrator Richard Serino will also participate.

Please let me know if a USACE official can join the call and we would add their name to the media advisory that would be issued Monday morning.

Thank you,
-Chris

Director, NOAA National Weather Service Public Affairs
202-536-8911

Classification: UNCLASSIFIED
Caveats: NONE

[redacted] NWO

From: [redacted] LRC
Sent: Saturday, June 04, 2011 1:54 PM
To: Farhat, Jody S NWD02
Subject: Flooding east of Ft. Peck Dam (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

Jody, can you give me an overview on this situation? I tried to read the inundation maps, but I'm unfamiliar with the region. Is there flooding east of Ft. Peck Dam now? If so, at what levels and what is the expected impact? If there is not flooding now, is flooding expected? How large of an area, mean depth, receding date, etc. This is te general inquiry from a Laura Zuckerman at Reuters.

[redacted]
Public Affairs Specialist
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http://facebook.com/usacechicago
http://www.flickr.com/photos/usacechicago
Great Lakes and Mississippi River Interbasin Study (GLMRIS):
http://glmris.anl.gov
http://facebook.com/glmris

Classification: UNCLASSIFIED
Caveats: NONE

[redacted] NWO

From: Farmer, Monique L NWO
Sent: Saturday, June 04, 2011 1:54 PM
To: Farhat, Jody S NWD02
Cc: [redacted] NWO
Subject: Rough estimate for tomorrow's piece in the World Herald (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

Do we have a number we can provide for the World-Herald? We are getting very well-written, fair and balanced coverage in the Sunday edition (tomorrow). It would be great if we could provide them with a number if we have a rough estimate. I realize this may be a question we might have to kick back to states and local Ems.

MF

-----Original Message-----
From: Gaarder, Nancy [mailto:Nancy.Gaarder@owh.com]
Sent: Saturday, June 04, 2011 1:30 PM
To: Farmer, Monique L NWO
Subject: thank you

Hi Monique,

Thank you setting up today's review. It was extremely helpful.

I'll be done with my revisions probably in an hour or two, but in the meantime, my editor asks this question:

Does the corps have an estimate of the minimum number of people (or homes/businesses) that will be displaced?

Thank you again Monique,

Nancy

[redacted]
Omaha World-Herald
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Omaha, NE 68102

Classification: UNCLASSIFIED
Caveats: NONE

[redacted] NWO

From: [redacted]@usace.army.mil]
Sent: Saturday, June 04, 2011 12:24 PM
To: Farhat, Jody S NWD02
Subject: USACE News Release: Fort Peck releases historic water flows

U.S. Army Corps of Engineers
Omaha District

News Release

Release No: Fort Peck PA-01
Contact Diana Fredlund, (406) 526-3411 Ext. 4285
Cell: (406) 526-7308 For Release: June 4, 2011

FORT PECK RELEASES HISTORIC WATER FLOWS

Fort Peck, Mont. - The U.S. Army Corps of Engineers' Fort Peck Dam reached historic release levels today; the increased releases will allow the Corps to reach a targeted 50,000 cubic feet per second (cfs) by June 7. High release levels will continue throughout the summer.

Scheduled releases
40,000 cfs will be released by June 5
45,000 cfs will be released by June 6
50,000 cfs will be released by June 7

Releases are constantly monitored by Corps officials and are subject to change as needed.

The previous record flow of 35,000 cfs occurred during a high water event in 1975. "We have already reached a record for the amount of flow through the spillway, and when we reach 40,000 cfs we will reach a Fort Peck project record," said Fort Peck Operations Project Manager John Daggett.

The record flows mean boaters downstream of Fort Peck Dam should use extreme caution. "The increased flows have caused violent water in the plunge pool," Daggett said. "Boaters would be risking their lives to enter the downstream spillway channel during these high waters."

Heavy rain and melting of historic levels of snowpack in the upper Missouri River Basin have raised the water levels of rivers and reservoirs. The upper basin has received more than a year's worth of rain during the last month, nearly filling reservoirs.

For general questions regarding Missouri River flood response information, please call (402) 996-3877 or email the joint information center at MRJIC@usace.army.mil

Please follow us on Facebook (www.facebook.com/OmahaUSACE) and Twitter (www.twitter.com/OmahaUSACE) for the latest updates regarding our flood response operations.

You can also find flood inundation maps and local emergency management contact information on or social media sites and at http://www.nwo.usace.army.mil.

View daily and forecasted reservoir and river information on the Water Management section of the Northwestern Division homepage at http://nwd-mr.usace.army.mil/rcc.

-END-

If you would rather not receive future communications from U.S. Army Corps of Engineers, please go to http://USACEARMY.pr-optout.com/OptOut.aspx?520028x24691x317128x3x1875308x24000x6&Email=jody.s.farhat%40usace.army.mil.
U.S. Army Corps of Engineers, 1616 Capitol Ave Attn: CENWO-PA, Omaha, NE 68102 United States

[redacted] NWO

From: McMahon, John R BG NWD
Sent: Saturday, June 04, 2011 11:45 AM
To: Hofmann, Anthony J COL NWK; [redacted] NWD; Blechinger, Erik T NWO; Farhat, Jody S NWD02
Cc: Ruch, Robert J COL NWO
Subject: Fw: Congressman Luetkemeyer Letter
Attachments: Luetkemeyer Letter to Nixon 6-3-11.PDF

Tony:
No doubt you already saw this--good message from what I can see. Keep up the great work on all fronts.
BREAK--on the Sam Graves visit, we can discuss further--I may have Witt tag along for the Basin-wide issues/concerns--want to keep Jody and Erik crunching in Omaha. MTF.
Vr/John McMahon

----- Original Message -----
From: Tom & Karla Waters <waters4@ix.netcom.com>
To: Waters Tom & Karla <waters4@ix.netcom.com>
Sent: Sat Jun 04 05:40:56 2011
Subject: Congressman Luetkemeyer Letter

BLAINE LUETKEMEYER
MEMBER OF CONGRESS
9TH DISTRICT, MISSOURI

WASHINGTON OFFICE:
1740 LONGWORTH HOUSE OFFICE BUILDING
WASHINGTON, DC 20515
(202) 225-2956
FAX: (202) 225-5712
http://luetkemeyer.house.gov

Congress of the United States
House of Representatives
Washington, DC 20515

COMMITTEE ON
FINANCIAL SERVICES
FINANCIAL INSTITUTIONS
AND CONSUMER CREDIT

DOMESTIC MONETARY POLICY
AND TECHNOLOGY

June 3, 2011

The Honorable Jay Nixon
Governor of Missouri
Missouri State Capitol Building
Room 216
Jefferson City, Missouri 65101

Dear Governor Nixon:

Given the devastation left in the wake of the Joplin tornado and other serious storms that recently swept the state, Missouri finds itself in a particularly precarious position. Our state is struggling and we must be especially prepared should floodwaters meet or exceed expected levels.

I have been in contact with Brigadier General John R. McMahon, Commander of the Northwestern Division of the U.S. Army Corps of Engineers (Corps), and my staff is in close contact with staff from both the Kansas City and St. Louis Districts of the Corps. We are participating in daily calls with Corps officials and working with local authorities to ensure that the communities across the Ninth District of Missouri are appropriately situated to deal with any disaster, major or minor.

While much remains uncertain, we understand from Corps officials that they are doing everything in their power to prepare for the potential of heavy flooding in our state. I will continue to have discussions with Corps officials as we move through this challenging time and ensure to the best of my ability that they have the federal support needed to complete their mission.

To say that the threat we face is serious would be a gross understatement. It is my hope that we can work in tandem with you to prepare our state for a worst-case scenario flooding event. I urge you to closely monitor the situation, prepare FEMA officials for the possibility of a disaster declaration and, if need be, swiftly submit a disaster declaration request to the President.

Please do not hesitate to contact me if I can provide any assistance in the House of Representatives.

Sincerely,

Blaine Luetkemeyer
Member of Congress

3809 SOUTH PROVIDENCE ROAD, SUITE A
COLUMBIA, MO 65203
PHONE: (573) 443-1041
FAX: (573) 443-1050

516 JEFFERSON STREET
WASHINGTON, MO 63090
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201 NORTH THIRD STREET, SUITE 120
HANNIBAL, MO 63401
PHONE: (573) 231-1012
FAX: (573) 231-1014

[redacted] NWO

From: [redacted]. Jr NWO
Sent: Saturday, June 04, 2011 11:33 AM
To: CENWO-EOC NWO; Williamson, Eileen L NWO; [redacted] MVR; Farhat, Jody S NWD02; [redacted] HQ02; [redacted] HQ02; [redacted] HQ02; [redacted] W HQ02; [redacted] LRH; [redacted] LRH; [redacted] MVM
Cc: [redacted] NWO; [redacted] NWD02; Farhat, Jody S NWD02; [redacted] NWD02; [redacted] NWD02; [redacted] NWD-OMAHA; [redacted] NWD02; [redacted] NWD02; [redacted] NWD02; [redacted] NWD02; [redacted] NWD02; [redacted] NWD02; [redacted] NWO; [redacted] RMC; [redacted] NWD02; [redacted] NWD; [redacted] E MVD
Subject: Missouri River Basin Water Management Division Situation Report of 6-4-11 (UNCLASSIFIED)
Attachments: Missouri River Basin Water Management Situation Report 6-4-11.docx

Classification: UNCLASSIFIED
Caveats: NONE

Kim/ Eileen,

Today's NWD Water Management situation report is attached.

[redacted]
Missouri Basin Water Managment Division
Northwestern Division
Corps of Engineers
[redacted]
[redacted]@usace.army.mil

Classification: UNCLASSIFIED
Caveats: NONE

Missouri River Basin Water Management Situation Report – 6-4-11

Reservoir Conditions

The upper three reservoirs of the Missouri River Mainstem Reservoir System provide the bulk of the storage of water. All three are in their exclusive flood control zones, with Fort Peck passing its spillway crest (continuing up on raised spillway gates) and the other two nearing their spillway crests. Table 1 summarizes the situation as of 0000 hours this morning. More details on the reservoirs can be found on the daily bulletin prepared by the Missouri River Basin Water Management Division at: http://www.nwd-mr.usace.army.mil/rcc/reports/showrep.cgi?4BULL0MR1.

Table 1. Key Reservoir Data (through 0000 hrs 6/4/11)

Reservoir	Inflow kcfs	Outflow kcfs	Top of Spillway Gates feet msl	Current Level feet msl	24-hr Change feet
Fort Peck	56.0	19.0	2250	2250.2	0.2
Garrison	133.0	113.2	1854	1853.7	-0.1
Oahe	104.0	94.2	1620	1619.1	0.2
Big Bend	83.0	89.1	1423	1419.4	-0.3
Fort Randall	97.0	91.2	1375	1360.2	0.1
Gavins Point	83.0	84.9	1210	1206.3	0.0

Based on the current level data on the upper three reservoirs, the amount of remaining storage has diminished or is diminishing. One way to characterize this factor is to compute the percent of the exclusive flood control zone that is remaining to store water before water passes uncontrolled over the spillway gates. The lower three reservoirs have much less capability to store the inflows that are coming into the Missouri River Mainstem Reservoir System, with Fort Randall Reservoir having the greater amount. As of today, the stored water has not yet entered the exclusive flood control zones of the three smaller reservoirs; therefore, 100 percent of their exclusive flood control storage remains available. Table 2 summarizes the storage volumes of all six System reservoirs, with the last column listing the amount of exclusive flood control storage that remains as of today. Spillways are now being used at five of the six reservoirs, with no plans to use Oahe spillway at this time. Because the spillway gates are open at Fort Peck and Garrison, the percent of exclusive has become negative at Fort Peck and may become negative over the next day or two at Garrison, as water follows the raised gates. A positive number must always appear for Oahe as long as the spillway gates remain closed at that project.

Table 2. Reservoir Storage Data (through 0000 hrs 6/4/11)

Reservoir	Current	Total	Remaining	Exclusive	% Excl Left
	kAF	kAF	kAF	kAF	
Fort Peck	18,506	18,463	-43	971	-4
Garrison	23,725	23,821	96	1,489	6
Oahe	22,796	23,137	341	1,102	31
Big Bend	1,594	1,798	204	60	100
Fort Randall	3,983	5,418	1,435	985	100
Gavins Point	350	450	100	57	100

Releases from the five of the six reservoirs are currently exceeding records prior to 2011. The sixth, Fort Peck Reservoir, will exceed its record release within the next week. Table 3 provides release data for all six reservoirs to provide some perspective on the changes that will be happening over the next 2 weeks. A full listing of the data through mid-July is available at: http://www.nwd-mr.usace.army.mil/rcc/reports/twout.html.

Table 3. Reservoir Release Comparisons (through 0000 hours 6/4/11)

Reservoir	Yesterday	Forecast Today	7 days out 11 June	14 days out 18 June	Pre-2011 Record
	kcfs	kcfs	kcfs	kcfs	kcfs
Fort Peck	19.0	30.0	50	50	35
Garrison	113.2	115.0	135	150	65
Oahe	94.2	120.0	150	150	59
Big Bend	89.1	120.0	150	150	74
Fort Randall	91.2	107.0	143	148	67
Gavins Point	84.9	100.0	145	150	70

River Conditions

Levees are currently being conducted in six cities from Bismarck/Mandan, ND to South Sioux City, NE, resulting primarily from the releases from Garrison, Oahe, and Gavins Point Dams. Many communities along the lower Missouri River are currently experiencing Missouri River flows that are above flood stage by several feet. The flood stages currently being experienced will be exceeded as Missouri River Mainstem Reservoir System releases increase over the next few weeks to pass the anticipated inflows from mountain snowpack runoff and heavy rains in the Missouri River basin. Table 4 summarizes the current conditions as of 0600 hours this morning and the Corps' current forecast for crest stages.

Table 4. Missouri River Stage Data for 6/4/11 at 0600 CDT

Location	Flood Stage	Current Stage	Forecast Crest Stage	Date of Crest Stage
Bismarck, ND	16	17.2	20-21	mid-Jun
Pierre, SD	15	16.3	18.7	mid-Jun
Sioux City, IA	30	28.9	35-37	mid-Jun thru July
Decatur, NE	35	34.1	40-42	mid-Jun thru July
Omaha, NE	29	29.6	34-36	mid-Jun thru July
Nebraska City, NE	18	23.1	27-28+	mid-Jun thru July
St. Joseph, MO	17	21.7	27-32	mid-Jun thru July
Kansas City, MO	32	29.0	30-39	mid-Jun thru July
Waverly, MO	20	25.4	27-31	mid-Jun thru July
Boonville, MO	21	22.9	27-33	mid-Jun thru July
Hermann, MO	21	22.7	27-33	mid-Jun thru July

Information on Current Mountain Snowpack and Forecasted Rainfall

Releases from the System reservoirs are based on snowpack and rainfall forecasts in the Missouri River basin. An updated snowfall forecast has not yet been prepared today; however, the Hydrologic Prediction Center (HPC) of NOAA prepares a rainfall forecast daily for up to the next 5 days, with an accumulated figure also presented on its website. Figure 1 is the accumulated 5-day rainfall forecast released today by HPC, and Figure 2 is yesterday's mountain snowpack update compiled by the Corps.

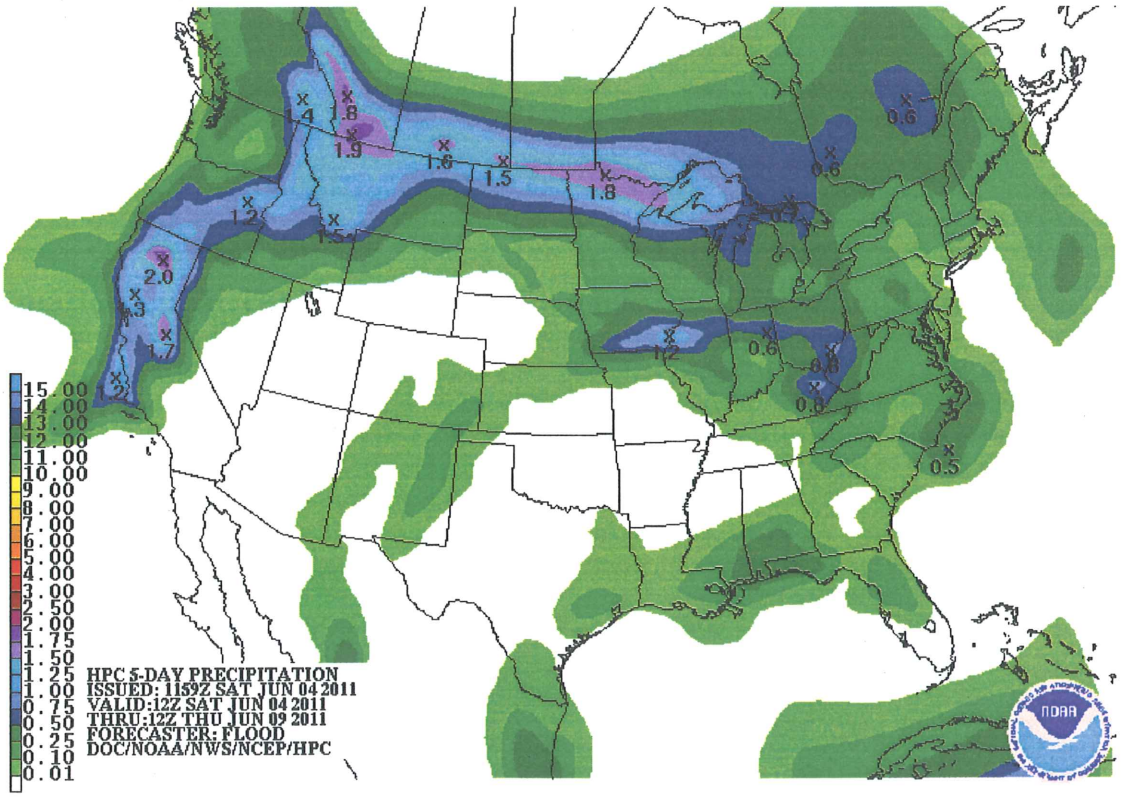

Figure 1. 5-day total QPF ending 0700 Thursday, June 9, 2011.

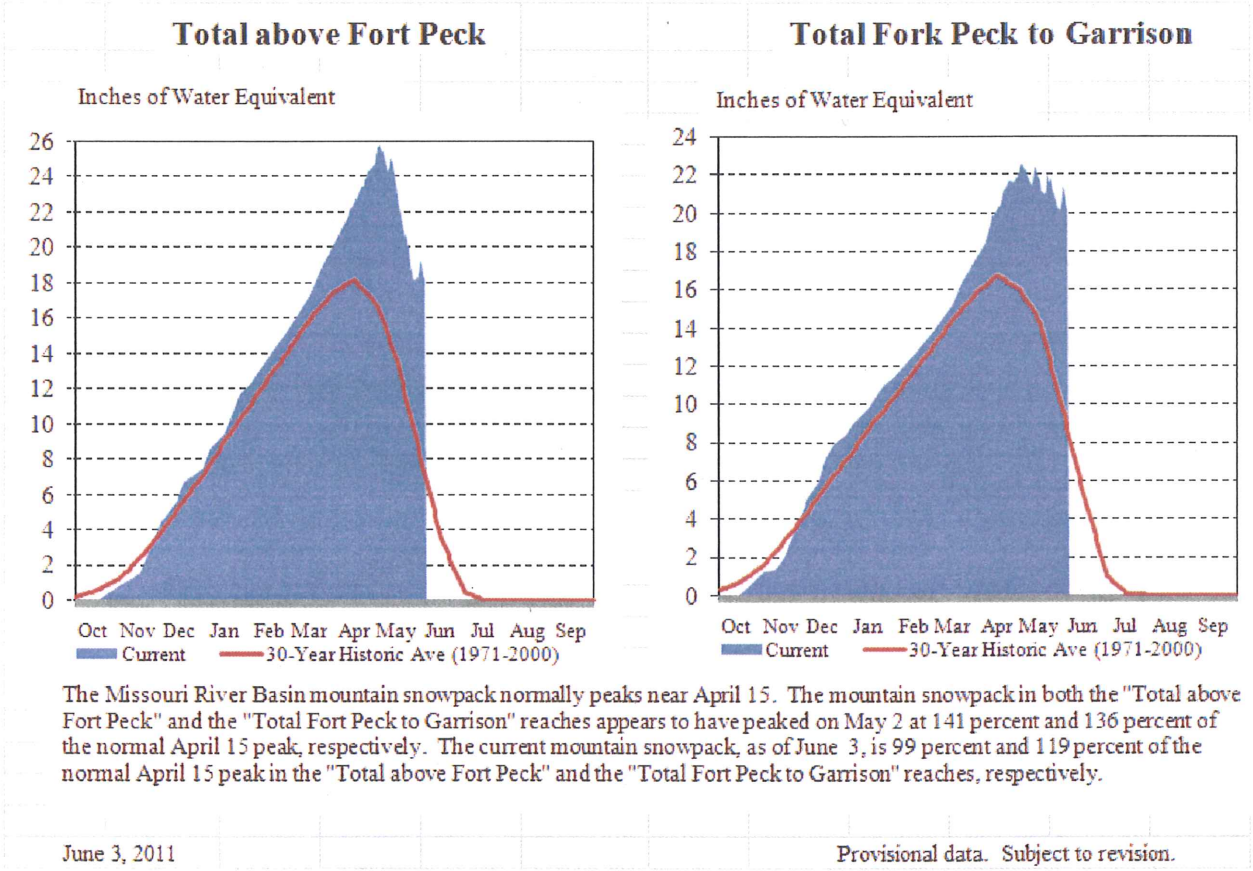

Figure 2. Missouri River basin mountain snowpack water content summary, 2010-2011 – June 3, 2011.

Actions Underway to Prepare for the Releases

Actions continue to prepare for the already high flows on the Missouri River and those that will result from the increased releases from the Missouri River Mainstem System reservoirs. The Omaha District continues to work with the cities of Bismarck/Mandan, ND, Pierre/Ft. Pierre, SD, Dakota Dunes, SD, and South Sioux City, NE to construct levees to limit flood impacts to those cities. Floodplain evacuations have been ongoing for many lower-lying areas along the lower Missouri River.

Floodplain inundation maps have been posted by the Omaha District to identify the areas of potential flooding for the emergency managers and the public. The current schedule for posting of the Kansas City District's floodplain inundation maps is Monday, June 6. Overtopping of levees information is also available from both districts.

[redacted]NWO

Subject: Where's the Water - Live Radio Show (UNCLASSIFIED)
Location: Jody's Office

Start: Mon 6/6/2011 9:30 AM
End: Mon 6/6/2011 10:00 AM
Show Time As: Tentative

Recurrence: (none)

Meeting Status: Not yet responded

Organizer: Farmer, Monique L NWO
Required Attendees: Farhat, Jody S NWD02; [redacted] NWO

Classification: UNCLASSIFIED
Caveats: NONE

KMA Land has a live radio show. They would like us to do 10 minutes on their show called, "Where's the Water." The reporter is Hilda Long. She let us develop the questions. One of the External PA's came up with the following. Kim: I know you are in the hydro brief, so if you want me to prep Jody with the key messages re: a flood fight, I can do that.

What's going on/How did we get to this point?

What does the Corps do during a flood fight?

Why didn't the Corps evacuate water out of it's system so that it could be prepared for something like this?

Where can people get additional information regarding the Missouri River flood fight?

Is there anything else you'd like to add?

The show is set for 9:38 a.m. to 9:48 a.m.

Web site here: HYPERLINK "http://www.kmaland.com" www.kmaland.com

V r,

Monique

Classification: UNCLASSIFIED
Caveats: NONE

[redacted] NWO

From: [redacted] NWD02
Sent: Saturday, June 04, 2011 10:55 AM
To: [redacted] NWO; Farhat, Jody S NWD02; [redacted] HQ02; [redacted] LRH; [redacted] LRH; [redacted] HQ02
Cc: [redacted] HQ02; Bertino, John J Jr NWO; [redacted] NWO
Subject: RE: Questions (UNCLASSIFIED)
Attachments: Missouri Mainstem Dam Info May 11.xlsx

Classification: UNCLASSIFIED
Caveats: NONE

Per your request. I provided this info to Gen. McMahon early this week. (The forecasted peak pool elevations have changed slightly since then.)

In addition to the 6 mainstem dams, there are 3 Corps owned sub-impoundments that have been assigned DSAC ratings.

I am cc'ing the Omaha District Dam Safety Officer and staff, so they know the source of this information.

Jody and [redacted] Should this info be furnished to the JIC?

Regards,

[redacted]
NWD Dam Safety Program Manager

-----Original Message-----
From: [redacted] NWO
Sent: Saturday, June 04, 2011 10:29 AM
To: [redacted] NWD02
Subject: FW: Questions (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

-----Original Message-----
From: [redacted] LRH
Sent: Saturday, June 04, 2011 9:05 AM
To: [redacted] NWO
Cc: [redacted] LRH; [redacted] HQ02
Subject: Questions (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

Morning [redacted]

Hoping you are in today.

1. Urgent response on this one - Request from homeland security - What is the average flow for the month of June over the last three years (2008, 2009, 2010)? Need this for each of the 6 mainstem projects.
2. Where do I find the long term forecast for Bismarck and Pierre. The Excel plot you sent works fine. The plan was to update the observed day by day. We also need to update the forecast.
3. Since we are new to this do you have time to explain the master plan for fighting this flood? If so when is a good time to call?
4. Just for our own info - What are the DSAC ratings of the 6 mainstem projects?

[redacted]

Classification: UNCLASSIFIED
Caveats: NONE

Classification: UNCLASSIFIED
Caveats: NONE

Classification: UNCLASSIFIED
Caveats: NONE

NWD Dam Safety Action Classification (DSAC) I, II, and III Project Summaries
For Missouri River Mainstem Dams

I	**URGENT and COMPELLING (Unsafe)**
II	**URGENT (Unsafe or Potentially Unsafe)**
III	**HIGH PRIORITY (Conditionally Unsafe)**
IV	**PRIORITY (Marginally Safe)**

Name	DSAC	Location
Fort Peck Dam (Past record pool was elev. 2251.6 in 1975. New forecast record is 2252.4 in early July. Top of gates is 2250.)	IV	Montana
Garrison Dam (Past record pool was elev. 1854.8 in 1975. New forecast record is 1854.6 in early June. Top of gates is 1854.)	IV	North Dakota
Williston Levees (Garrison Sub Impoundment)	III	North Dakota
Snake Creek Embankment (Garrison Sub Impoundment)	IV	North Dakota
Oahe (Past record pool was elev. 1618.7 in 1995 and 1996. New forecast record is 1619.6 in early June. Top of gates is 1620.)	III	South Dakota
Lake Pocasse (Oahe Sub Impoundment)	III	South Dakota
Fort Yates (Oahe Sub Impoundment)	III	South Dakota
Big Bend The record pool of 1422.1 will not be exceeded.	III	South Dakota

Fort Randall The record pool of 1372.2 will not be exceeded.	III	South Dakota
Gavins Point The record pool of 1210.7 will not be exceeded.	III	South Dakota

[redacted] NWO

From: [redacted] NWO
Sent: Saturday, June 04, 2011 10:47 AM
To: Farhat, Jody S NWD02
Cc: DLL-CENWO-OD-FP
Subject: RE: Spillway Rating Table Update (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

Thanks

[redacted]

-----Original Message-----
From: Farhat, Jody S NWD02
Sent: Saturday, June 04, 2011 9:44 AM
To: [redacted] NWO; [redacted] NWO; [redacted] NWO
Cc: Schenk, Kathryn M NWO; [redacted] NWO; [redacted] NWO; [redacted] L NWO; DLL-CENWO-OD-FP; [redacted] NWD02; [redacted] D NWD02; [redacted] NWD02; [redacted] NWD02; [redacted] NWP; [redacted] NWO; Bertino, John J Jr NWO; [redacted] NWO; [redacted] NWO
Subject: RE: Spillway Rating Table Update (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

No need to adjust gates. That's close enough.

-----Original Message-----
From: [redacted] NWO
Sent: Saturday, June 04, 2011 10:42 AM
To: [redacted] NWO; [redacted] NWO
Cc: Schenk, Kathryn M NWO; [redacted] NWO; [redacted] NWO; [redacted] NWO; DLL-CENWO-OD-FP; Farhat, Jody S NWD02; [redacted] NWD02; [redacted] NWD02; [redacted] NWD02; [redacted] NWD02; [redacted] NWP; [redacted] NWO; Bertino, John J Jr NWO; [redacted] NWO; [redacted] NWO
Subject: RE: Spillway Rating Table Update (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

[redacted]

Ok, we will use the new tables and what is in the computer. All 16 gates are open 1.4 ft and the computer shows we are at 22,600 cfs. RCC can let us know if they want to lower gates 600 cfs. I hope it ok for today. The hydraulic jump moved downstream and is on the edge of the concrete apron. The erosion on the wing wall corners seems to be less. The force of the water seems to be more in the channel which may create bottom scouring, but that would be expected. I will send pictures this morning.

[redacted]

-----Original Message-----
From: [redacted] NWO

Sent: Saturday, June 04, 2011 9:24 AM
To: [redacted] NWO; [redacted] NWO
Cc: Schenk, Kathryn M NWO; [redacted] NWO; [redacted] NWO; [redacted] NWO
Subject: FW: Spillway Rating Table Update (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

[redacted]

I spoke with [redacted] and [redacted] about this. Bottom line - we should be good. Ryan received updated tables and rating curves from Hydro Branch (Roger Kay's group) and incorporated that information into PPCS. The old tables were from the 60's. The discharges at the various gate settings are calculated from this new information, and fall within a certain range of accuracy/error. If you believe that something appears to be off considerably, from a downstream gaging station, etc., be sure to inform so that adjustments/tweaks can be made.

[redacted]

-----Original Message-----
From: [redacted] NWO
Sent: Saturday, June 04, 2011 8:37 AM
To: [redacted] NWO; [redacted] NWO
Cc: [redacted] NWO; [redacted] NWO; Bertino, John J Jr NWO; Farhat, Jody S NWD02; [redacted] NWD02; [redacted] NWD02; [redacted] NWD02
Subject: RE: Spillway Rating Table Update (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

[redacted]

Can you run this one to ground, please.

Thanks,

[redacted]

-----Original Message-----
From: [redacted] NWO
Sent: Saturday, June 04, 2011 8:20 AM
To: [redacted] NWO; [redacted] NWO
Cc: [redacted] NWO; [redacted] NWO; Bertino, John J Jr NWO; Farhat, Jody S NWD02; [redacted] NWD02; [redacted] NWD02; [redacted] NWD02
Subject: FW: Spillway Rating Table Update (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

[redacted] and [redacted]

Can you check with [redacted] on these new tables? I was not aware they were changing. The new tables are about 1000 cfs less for the past days discharge. Today, at a 22,000 release they look pretty close. Do they match the Rating Curves that we have used for years? I want to make sure these spillway discharges are right.

[redacted]

-----Original Message-----
From: [redacted] NWO
Sent: Friday, June 03, 2011 6:02 PM
To: [redacted] NWO
Cc: Farhat, Jody S NWD02; Bertino, John J Jr NWO; [redacted] NWO; [redacted] NWO; Schenk, Kathryn M NWO; [redacted] NWO; [redacted] NWO
Subject: FW: Spillway Rating Table Update (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

[redacted]

Make sure you keep Reservoir Control and Engineering Division in the loop on these. They must have accurate release information.

[redacted]

-----Original Message-----
From: [redacted] NWD02
Sent: Friday, June 03, 2011 5:06 PM
To: [redacted] NWO
Subject: RE: Spillway Rating Table Update (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

We are now. Thanks.

[redacted]
Reservoir Regulation Team Lead
Missouri River Basin Water Management,
Northwestern Division, USACE
[redacted]
[redacted] (fax)

-----Original Message-----
From: [redacted] NWO
Sent: Friday, June 03, 2011 3:41 PM
To: Farhat, Jody S NWD02; [redacted] NWD02; [redacted] NWD02; [redacted] NWD02
Subject: FW: Spillway Rating Table Update (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

All:

Are you all aware of this change?

[redacted]

-----Original Message-----
From: [redacted] NWO
Sent: Friday, June 03, 2011 12:18 PM
To: DLL-CENWO-FP-Operator

Subject: Spillway Rating Table Update (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

The spillway rating table has been updated in ppcs as per the attached tables.

[redacted]
Electrical/PPCS Engineer
U.S. Army Corps of Engineers
Operations Division
Office: [redacted]
Cell: [redacted]

Classification: UNCLASSIFIED
Caveats: NONE

Classification: UNCLASSIFIED
Caveats: NONE

Classification: UNCLASSIFIED
Caveats: NONE

Classification: UNCLASSIFIED
Caveats: NONE

Classification: UNCLASSIFIED
Caveats: NONE

Classification: UNCLASSIFIED
Caveats: NONE

Classification: UNCLASSIFIED
Caveats: NONE

Classification: UNCLASSIFIED

[redacted] NWO

From: [redacted] NWO
Sent: Saturday, June 04, 2011 10:45 AM
To: [redacted] NWD; [redacted] NWD
Cc: Farhat, Jody S NWD02
Subject: WM Update - 6-4-11 (UNCLASSIFIED)
Attachments: NWD Missouri Basin Update - 060411.pptx

Classification: UNCLASSIFIED
Caveats: NONE

[redacted]

Today's Update is attached.

[redacted]
Missouri River Basin Water Management Division Northwestern Division Corps of Engineers
[redacted]
[redacted]r@usace.army.mil

Classification: UNCLASSIFIED
Caveats: NONE

Missouri River Basin Stages

4 June 2011

US Army Corps of Engineers
BUILDING STRONG®

	Station	Flood Stage	Current Stage	Likely Range of Highest* Flows/Stages		Projected Date **	Record Stage (Year)
A	Bismarck	16	17.2	150 kcfs 20.6		June 19	
B	Pierre	15	16.3	150 kcfs 18.7		June 7	
C	Yankton	20	20.1	150 kcfs n/a	 n/a	June 14	
D	Sioux City	30	28.9	170 kcfs 35	200 kcfs 37	June 15	44.28 (1952)
E	Decatur	35	34.1	175 kcfs 40	205 kcfs 42	June 15	43.5 (1943)
F	Blair	26.5	28.1	175 kcfs 30	205 kcfs 32	June 15	33.5 (1952)
G	Omaha	29	29.6	175 kcfs 34	210 kcfs 36	June 16	40.2 (1952)
H	Nebraska City	18	23.1	200 kcfs 27	250 kcfs 28+	June 16	27.19 (1993)
I	Brownville	33	39.3	205 kcfs 43	270 kcfs 44+	June 16	44.3 (1993)
J	Rulo	17	22.9	210 kcfs 25.5	290 kcfs 27+	June 17	26.63 (2010)
K	St. Joseph	17	21.7	215 kcfs 27	320 kcfs 32	June 17	32.07 (1993)
L	Atchison	22	24.8	215 kcfs 30	320 kcfs 34	June 17	31.63 (1993)
M	Leavenworth	20	20.8	215 kcfs 27	320 kcfs 33	June 17	35.34 (1993)

Missouri River Basin Stages

4 June 2011

US Army Corps of Engineers
BUILDING STRONG®

	Station	Flood Stage	Current Stage	Likely Range of Highest* Flows/Stages		Projected Date **	Record Stage (Year)
N	Kansas City	32	29.0	220 kcfs 30	350 kcfs 39	June 18	48.87 (1993)
O	Sibley	22	27.8	220 kcfs 28	350 kcfs 33	June 18	40.6 (1952)
P	Napoleon	17	24.1	220 kcfs 25	350 kcfs 29	June 18	28.86 (2007)
Q	Waverly	20	25.4	230 kcfs 27	370 kcfs 31	June 18	31.15 (1993)
R	Miami	18	24.4	235 kcfs 26	370 kcfs 30	June 19	32.6 (1993)
S	Glasgow	25	26.5	250 kcfs 32	410 kcfs 37	June 19	39.5 (1993)
T	Boonville	21	22.9	260 kcfs 27	420 kcfs 33	June 19	37.1 (1993)
U	Jefferson City	23	21.9	260 kcfs 27	430 kcfs 35	June 19	38.3 (1993)
V	Chamois	17	18.3	290 kcfs 24	450 kcfs 29	June 19	33.3 (1993)
W	Gasconade	22	24.7	300 kcfs 30	470 kcfs 35	June 19	39.6 (1993)
X	Hermann	21	22.7	300 kcfs 27	470 kcfs 33	June 20	36.97 (1993)
Y	Washington	20	19.0	300 kcfs 23	470 kcfs 32	June 20	35.4 (1993)
Z	St. Charles	25	25.1	300 kcfs 28	470 kcfs 37	June 20	40.04 (1993)

[redacted] NWO

From: [redacted] NWO
Sent: Saturday, June 04, 2011 10:42 AM
To: [redacted] NWO; [redacted] NWO
Cc: Schenk, Kathryn M NWO; [redacted] NWO; [redacted] NWO; [redacted] NWO; DLL-CENWO-OD-FP; Farhat, Jody S NWD02; [redacted] NWD02; [redacted] NWD02; [redacted] NWD02; [redacted] NWD02; [redacted] NWP; [redacted] NWO; Bertino, John J Jr NWO; [redacted] NWO; [redacted] NWO
Subject: RE: Spillway Rating Table Update (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

[redacted]

Ok, we will use the new tables and what is in the computer. All 16 gates are open 1.4 ft and the computer shows we are at 22,600 cfs. RCC can let us know if they want to lower gates 600 cfs. I hope it ok for today. The hydraulic jump moved downstream and is on the edge of the concrete apron. The erosion on the wing wall corners seems to be less. The force of the water seems to be more in the channel which may create bottom scouring, but that would be expected. I will send pictures this morning.

[redacted]

-----Original Message-----
From: [redacted] NWO
Sent: Saturday, June 04, 2011 9:24 AM
To: [redacted] NWO; [redacted] NWO
Cc: Schenk, Kathryn M NWO; [redacted] NWO; [redacted] NWO; [redacted] NWO
Subject: FW: Spillway Rating Table Update (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

[redacted]:

I spoke with Ryan and Ken about this. Bottom line - we should be good. Ryan received updated tables and rating curves from Hydro Branch (Roger Kay's group) and incorporated that information into PPCS. The old tables were from the 60's. The discharges at the various gate settings are calculated from this new information, and fall within a certain range of accuracy/error. If you believe that something appears to be off considerably, from a downstream gaging station, etc., be sure to inform so that adjustments/tweaks can be made.

[redacted]

-----Original Message-----
From: [redacted] NWO
Sent: Saturday, June 04, 2011 8:37 AM
To: [redacted] NWO; [redacted] NWO
Cc: [redacted] NWO; [redacted] NWO; Bertino, John J Jr NWO; Farhat, Jody S NWD02; [redacted] NWD02; [redacted] NWD02; [redacted] NWD02
Subject: RE: Spillway Rating Table Update (UNCLASSIFIED)

Classification: UNCLASSIFIED

Caveats: NONE

[redacted]

Can you run this one to ground, please.

Thanks,

[redacted]

-----Original Message-----
From: [redacted] NWO
Sent: Saturday, June 04, 2011 8:20 AM
To: [redacted] NWO; [redacted] NWO
Cc: [redacted] NWO; [redacted] NWO; Bertino, John J Jr NWO; Farhat, Jody S NWD02; [redacted] NWD02; [redacted] NWD02; [redacted] NWD02
Subject: FW: Spillway Rating Table Update (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

[redacted] and [redacted]:

Can you check with Ryan on these new tables? I was not aware they were changing. The new tables are about 1000 cfs less for the past days discharge. Today, at a 22,000 release they look pretty close. Do they match the Rating Curves that we have used for years? I want to make sure these spillway discharges are right.

[redacted]

-----Original Message-----
From: [redacted] NWO
Sent: Friday, June 03, 2011 6:02 PM
To: [redacted] NWO
Cc: Farhat, Jody S NWD02; Bertino, John J Jr NWO; [redacted] NWO; [redacted] NWO; Schenk, Kathryn M NWO; [redacted] NWO; Janis, Larry D NWO
Subject: FW: Spillway Rating Table Update (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

[redacted]:

Make sure you keep Reservoir Control and Engineering Division in the loop on these. They must have accurate release information.

[redacted]

-----Original Message-----
From: [redacted] NWD02
Sent: Friday, June 03, 2011 5:06 PM
To: [redacted] NWO
Subject: RE: Spillway Rating Table Update (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

We are now. Thanks.

[redacted]
Reservoir Regulation Team Lead
Missouri River Basin Water Management,
Northwestern Division, USACE
[redacted]
[redacted] (fax)

-----Original Message-----
From: [redacted] NWO
Sent: Friday, June 03, 2011 3:41 PM
To: Farhat, Jody S NWD02; [redacted] NWD02; [redacted] NWD02; [redacted] NWD02
Subject: FW: Spillway Rating Table Update (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

All:

Are you all aware of this change?

[redacted]

-----Original Message-----
From: [redacted] NWO
Sent: Friday, June 03, 2011 12:18 PM
To: DLL-CENWO-FP-Operator
Subject: Spillway Rating Table Update (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

The spillway rating table has been updated in ppcs as per the attached tables.

[redacted]
Electrical/PPCS Engineer
U.S. Army Corps of Engineers
Operations Division
Office: [redacted]
Cell: [redacted]

Classification: UNCLASSIFIED
Caveats: NONE

Classification: UNCLASSIFIED
Caveats: NONE

Classification: UNCLASSIFIED

[redacted] NWO

From: Williamson, Eileen L NWO
Sent: Saturday, June 04, 2011 10:30 AM
To: DLL-CENWO-ALL Employees; DLL-CENWD Zorinsky-Floor 3
Subject: FW: Riverwatch June 4, 2011 #2011MoRivFlood (UNCLASSIFIED)
Attachments: 604NR-RIVERWATCH6-11.pdf

Classification: UNCLASSIFIED
Caveats: NONE

As Corps employees, we know that your friends and neighbors may have questions regarding the flooding.

Below is the official information that we have available.

We are posting this information to Facebook on a daily basis.
http://us.vocuspr.com/Publish/520028/PRAssetNWORiverwatch.xml

Please use this information or direct people who ask you questions to Facebook.

This will be sent daily through the duration of the flooding event.

Regards, Eileen Williamson

Missouri River Mainstem Reservoir Bulletin (Updated 4 Jun; 0845 CDT)

Fort Peck (In operation since 1940) Midnight Elevation
* 2250.2 ft msl
* 24-hr Change (+0.2 ft)

Daily Avg. Inflow
* 56,000 cfs (3 Jun)
* 73,000 cfs (2 Jun)

Daily Avg. Release
* 19,000 cfs (3 Jun)
* 13,000 cfs (2 Jun)

Annual Flood Ctrl & Multi-Use Zone (Elevation)
* 2234 ft msl - 2246 ft msl

Exclusive Flood Ctrl Zone (Elevation)
* 2246 ft msl - 2250 ft msl

Top of Spillway Gates
* 2250 ft msl

Planned Scheduled Releases (Subject to Change)
* Peak release will be 50,000 cfs by no later than mid June.
* Reservoir will use several feet of surcharge storage above the exclusive flood control pool as spillway gates are raised.

Record Flow (Year)
* 35,000 cfs (1975)

Projected Record Flow (Date)
* 50,000 cfs (Mid June)

Garrison (In operation since 1955)
Midnight Elevation
* 1853.7 ft msl
* 24-hr Change (-0.1 ft)

Daily Avg. Inflow
* 133,000 cfs (3 Jun)
* 130,000 cfs (2 Jun)

Daily Avg. Release
* 113,200 cfs (3 Jun)
* 105,000 cfs (2 Jun)

Annual Flood Ctrl & Multi-Use Zone (Elevation)
* 1837.5 ft msl - 1850 ft msl

Exclusive Flood Ctrl Zone (Elevation)
* 1850 ft msl - 1854 ft msl

Top of Spillway Gates
* 1854 ft msl

River Stage (Bismarck)
* 17.24 (0830 CDT 4 Jun)
* Flood stage - 16 ft
* 16.78 (0615 CDT 3 Jun)

Planned Scheduled Releases (Subject to Change)
* Releases will be stepped up to 150,000 cfs by mid June.
* Reservoir will use several feet of surcharge storage above exclusive flood control pool as spillway gates are raised.
* First time in history, spillway gates will be used to pass floodwaters.

Record Flow (Year)
* 65,000 cfs (1975)

Projected Record Flow (Date)
* 150,000 cfs (Mid June)

Oahe (In operation since 1962)
Midnight Elevation
* 1619.1 ft msl
* 24-hr Change (+0.2 ft)

Daily Avg. Inflow
* 104,000 cfs (3 Jun)
* 100,000 cfs (2 Jun)

Daily Avg. Release
* 94,200 cfs (3 Jun)
* 86,900 cfs (2 Jun)

Annual Flood Ctrl & Multi-Use Zone (Elevation)
* 1607.5 ft msl - 1620 ft msl

Exclusive Flood Ctrl Zone (Elevation)
* 1617 ft msl - 1620 ft msl

Top of Spillway Gates
* 1620 ft msl

River Stage (Pierre)
* 16.38 (0815 CDT 3 Jun)
* Flood stage - 15 ft
* 15.21 (0615 CDT 3 Jun)

Planned Scheduled Releases (Subject to Change)
* Releases will be stepped up to 150,000 cfs by mid June.
* Reservoir will peak within a foot of the top of the spillway gates at 1619 feet.

Record Flow (Year)
* 59,000 cfs (1997)

Projected Record Flow (Date)
* 150,000 cfs (Mid June)

Big Bend (In operation since 1964)
Midnight Elevation
* 1419.4 ft msl
* 24-hr Change (-0.3 ft)

Daily Avg. Inflow
* 83,000 cfs (3 Jun)
* 82,000 cfs (2 Jun)

Daily Avg. Release
* 89,100 cfs (3 Jun)
* 77,900 cfs (2 Jun)

Annual Flood Ctrl & Multi-Use
Zone (Elevation)
* 1420 ft msl - 1423 ft msl

Exclusive Flood Ctrl Zone (Elevation)
* 1422 ft msl - 1423 ft msl

Top of Spillway Gates
* 1423 ft msl

Planned Scheduled Releases (Subject to Change)
* Releases will be stepped up to 150,000 cfs by mid June.
* Reservoir will remain essentially level at 1420 feet.

Record Flow (Date)
* 74,000 cfs (1997)

Projected Record Flow (Date)

* 150,000 cfs (Mid June)

Fort Randall (In operation since 1953)
Midnight Elevation
* 1360.2 ft msl
* 24-hr Change (+0.1 ft)

Daily Avg. Inflow
* 97,000 cfs (3 Jun)
* 85,000 cfs (2 Jun)

Daily Avg. Release
* 91,200 cfs (3 Jun)
* 83,100 cfs (2 Jun)

Annual Flood Ctrl & Multi-Use Zone (Elevation)
* 1350 ft msl - 1375 ft msl

Exclusive Flood Ctrl Zone (Elevation)
* 1365 ft msl - 1375 ft msl

Top of Spillway Gates
* 1375 ft msl

Planned Scheduled Releases (Subject to Change)
* Releases will be stepped up to 150,000 cfs by mid June.

Record Flow (Date)
* 67,000 cfs (1997)

Projected Record Flow (Date)
* 150,000 cfs (Mid June)

Gavins Point (In operation since 1955)
Midnight Elevation
* 1206.3 ft msl
* 24-hr Change (+0.0 ft)

Daily Avg. Inflow
* 83,000 cfs (3 Jun)
* 83,000 cfs (2 Jun)

Daily Avg. Release
* 84,900 cfs (3 Jun)
* 83,700 cfs (2 Jun)

Annual Flood Ctrl & Multi-Use Zone (Elevation)
* 1204.5 ft msl - 1210 ft msl

Exclusive Flood Ctrl Zone (Elevation)
* 1208 ft msl - 1210 ft msl

Top of Spillway Gates
* 1210 ft msl

Planned Scheduled Releases (Subject to Change)
* Releases will be stepped up to 150,000 cfs by mid June.

Record Flow (Date)
* 70,000 cfs (1997)

Projected Record Flow (Date)
* 150,000 cfs (Mid June)
Source of information: http://www.nwd-mr.usace.army.mil/rcc

Missouri River Mainstem 24-Hour Forecast Conditions (Updated 4 Jun; 0845 CDT)
****
24-hr forecast (Glasgow, MT)
Today: Partly sunny, with a high near 70. Calm wind becoming south around 6 mph.

Tonight: Mostly clear, with a low around 51. South southwest wind around 8 mph becoming east.

Sunday: Sunny, with a high near 80. East southeast wind 6 to 9 mph becoming west southwest.

****
24-hr forecast (Riverdale, ND)
Today: A 20 percent chance of showers and thunderstorms after 1pm. Partly sunny, with a high near 72. West wind between 5 and 11 mph.

Tonight: A slight chance of showers before 1am. Mostly cloudy, with a low around 52. South wind between 3 and 6 mph. Chance of precipitation is 20%.

Sunday: A 20 percent chance of showers and thunderstorms after 1pm. Mostly sunny, with a high near 81. Light south wind.

****
24-hr forecast (Washburn, ND)
Today: A 20 percent chance of showers and thunderstorms after 1pm. Partly sunny, with a high near 72. West wind between 5 and 10 mph.

Tonight: A slight chance of showers before 1am. Mostly cloudy, with a low around 50. South wind between 3 and 7 mph. Chance of precipitation is 20%.

Sunday: A 20 percent chance of showers and thunderstorms after 1pm. Mostly sunny, with a high near 81. South wind around 6 mph.

****
24-hr forecast (Bismarck/Mandan, ND)
Today: A 20 percent chance of showers and thunderstorms after 1pm. Partly sunny, with a high near 74. Northwest wind between 6 and 9 mph becoming calm.

Tonight: A slight chance of showers before 1am. Partly cloudy, with a low around 51. Calm wind becoming east around 6 mph. Chance of precipitation is 20%.

Sunday: A 20 percent chance of showers and thunderstorms after 1pm. Mostly sunny, with a high near 83. South wind between 5 and 9 mph.

****
24-hr forecast (Pierre, SD)
Today: Sunny, with a high near 77. North northwest wind between 7 and 9 mph.

Tonight: Mostly clear, with a low around 57. East southeast wind between 5 and 7 mph.

Sunday: A 20 percent chance of showers and thunderstorms after 1pm. Mostly sunny, with a high near 88. South southeast wind between 7 and 15 mph.

****
24-hr forecast (Ft. Pierre, SD)
Today: Sunny, with a high near 78. North northwest wind between 7 and 9 mph.

Tonight: Mostly clear, with a low around 57. East southeast wind around 6 mph.

Sunday: A 20 percent chance of showers and thunderstorms after 1pm. Mostly sunny, with a high near 89. South southeast wind between 6 and 15 mph.

****
24-hr forecast (Lower Brule, SD)
Today: Sunny, with a high near 79. North northwest wind around 9 mph.

Tonight: Mostly clear, with a low around 56. East southeast wind between 3 and 6 mph.

Sunday: A 20 percent chance of showers and thunderstorms after 1pm. Mostly sunny, with a high near 86. South southeast wind between 7 and 17 mph.

****
24-hr forecast (Chamberlain, SD)
Today: Sunny, with a high near 79. North northwest wind between 7 and 10 mph.

Tonight: Partly cloudy, with a low around 56. East southeast wind around 6 mph.

Sunday: A chance of showers and thunderstorms after 4pm. Partly sunny, with a high near 85. South southeast wind between 7 and 16 mph. Chance of precipitation is 30%.

****
24-hr forecast (Yankton, SD)
Today: Mostly sunny, with a high near 83. North northeast wind between 7 and 10 mph.

Tonight: Partly cloudy, with a low around 60. Northeast wind between 3 and 9 mph.

Sunday: A slight chance of showers and thunderstorms after 4pm. Mostly sunny, with a high near 86. East northeast wind at 11 mph becoming south southeast. Chance of precipitation is 20%.

****
24-hr forecast (Sioux City, IA)
Today: Partly sunny, with a high near 86. Northeast wind between 7 and 9 mph.

Tonight: Partly cloudy, with a low around 61. East northeast wind between 3 and 8 mph.

Sunday: A slight chance of showers and thunderstorms after 4pm. Mostly sunny, with a high near 86. East northeast wind 5 to 10 mph becoming south southeast. Chance of precipitation is 20%.

****

24-hr forecast (Omaha, NE)
Today: A 30 percent chance of showers and thunderstorms, mainly after 4pm. Partly sunny, with a high near 85. East wind between 7 and 9 mph. New rainfall amounts of less than a tenth of an inch, except higher amounts possible in thunderstorms.

Tonight: A 30 percent chance of showers and thunderstorms. Mostly cloudy, with a low around 63. East southeast wind between 3 and 8 mph. New rainfall amounts of less than a tenth of an inch, except higher amounts possible in thunderstorms.

Sunday: A 20 percent chance of showers and thunderstorms. Partly sunny, with a high near 90. Southeast wind between 5 and 8 mph.

Source of information: http://www.weather.gov/

Internet: http://www.nwo.usace.army.mil
Facebook: http://www.facebook.com/OmahaUSACE
Twitter: http://www.twitter.com/OmahaUSACE
YouTube: http://www.youtube.com/OmahaUSACE
Flickr: http://www.flickr.com/photos/omahausace

Classification: UNCLASSIFIED
Caveats: NONE

US Army Corps of Engineers
Omaha District

Missouri River Mainstem Reservoir Bulletin (Updated 4 Jun; 0845 CDT)

Fort Peck
(In operation since 1940)

Midnight Elevation
- 2250.2 ft msl
- 24-hr Change (+0.2 ft)

Daily Avg. Inflow
- 56,000 cfs (3 Jun)
- 73,000 cfs (2 Jun)

Daily Avg. Release
- 19,000 cfs (3 Jun)
- 13,000 cfs (2 Jun)

Annual Flood Ctrl & Multi-Use Zone (Elevation)
- 2234 ft msl – 2246 ft msl

Exclusive Flood Ctrl Zone (Elevation)
- 2246 ft msl – 2250 ft msl

Top of Spillway Gates
- 2250 ft msl

Planned Scheduled Releases (Subject to Change)
- Peak release will be 50,000 cfs by no later than mid June.
- Reservoir will use several feet of surcharge storage above the exclusive flood control pool as spillway gates are raised.

Record Flow (Year)
- 35,000 cfs (1975)

Projected Record Flow (Date)
- 50,000 cfs (Mid June)

Garrison
(In operation since 1955)

Midnight Elevation
- 1853.7 ft msl
- 24-hr Change (-0.1 ft)

Daily Avg. Inflow
- 133,000 cfs (3 Jun)
- 130,000 cfs (2 Jun)

Daily Avg. Release
- 113,200 cfs (3 Jun)
- 105,000 cfs (2 Jun)

Annual Flood Ctrl & Multi-Use Zone (Elevation)
- 1837.5 ft msl – 1850 ft msl

Exclusive Flood Ctrl Zone (Elevation)
- 1850 ft msl – 1854 ft msl

Top of Spillway Gates
- 1854 ft msl

River Stage (Bismarck)
- 17.24 (0830 CDT 4 Jun)
- Flood stage – 16 ft
- 16.78 (0615 CDT 3 Jun)

Planned Scheduled Releases (Subject to Change)
- Releases will be stepped up to 150,000 cfs by mid June.
- Reservoir will use several feet of surcharge storage above exclusive flood control pool as spillway gates are raised.
- First time in history, spillway gates will be used to pass floodwaters.

Record Flow (Year)
- 65,000 cfs (1975)

Projected Record Flow (Date)
- 150,000 cfs (Mid June)

Oahe
(In operation since 1962)

Midnight Elevation
- 1619.1 ft msl
- 24-hr Change (+0.2 ft)

Daily Avg. Inflow
- 104,000 cfs (3 Jun)
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Daily Avg. Release
- 94,200 cfs (3 Jun)
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Annual Flood Ctrl & Multi-Use Zone (Elevation)
- 1607.5 ft msl – 1620 ft msl

Exclusive Flood Ctrl Zone (Elevation)
- 1617 ft msl – 1620 ft msl

Top of Spillway Gates
- 1620 ft msl

River Stage (Pierre)
- 16.38 (0815 CDT 3 Jun)
- Flood stage – 15 ft
- 15.21 (0615 CDT 3 Jun)

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- Releases will be stepped up to 150,000 cfs by mid June.
- Reservoir will peak within a foot of the top of the spillway gates at 1619 feet.

Record Flow (Year)
- 59,000 cfs (1997)

Projected Record Flow (Date)
- 150,000 cfs (Mid June)

Big Bend
(In operation since 1964)

Midnight Elevation
- 1419.4 ft msl
- 24-hr Change (-0.3 ft)

Daily Avg. Inflow
- 83,000 cfs (3 Jun)
- 82,000 cfs (2 Jun)

Daily Avg. Release
- 89,100 cfs (3 Jun)
- 77,900 cfs (2 Jun)

Annual Flood Ctrl & Multi-Use Zone (Elevation)
- 1420 ft msl – 1423 ft msl

Exclusive Flood Ctrl Zone (Elevation)
- 1422 ft msl – 1423 ft msl

Top of Spillway Gates
- 1423 ft msl

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- Releases will be stepped up to 150,000 cfs by mid June.
- Reservoir will remain essentially level at 1420 feet.

Record Flow (Date)
- 74,000 cfs (1997)

Projected Record Flow (Date)
- 150,000 cfs (Mid June)

Fort Randall
(In operation since 1953)

Midnight Elevation
- 1360.2 ft msl
- 24-hr Change (+0.1 ft)

Daily Avg. Inflow
- 97,000 cfs (3 Jun)
- 85,000 cfs (2 Jun)

Daily Avg. Release
- 91,200 cfs (3 Jun)
- 83,100 cfs (2 Jun)

Annual Flood Ctrl & Multi-Use Zone (Elevation)
- 1350 ft msl – 1375 ft msl

Exclusive Flood Ctrl Zone (Elevation)
- 1365 ft msl – 1375 ft msl

Top of Spillway Gates
- 1375 ft msl

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Gavins Point
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Midnight Elevation
- 1206.3 ft msl
- 24-hr Change (+0.0 ft)

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- 83,000 cfs (3 Jun)
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- 1208 ft msl – 1210 ft msl

Top of Spillway Gates
- 1210 ft msl

Planned Scheduled Releases (Subject to Change)
- Releases will be stepped up to 150,000 cfs by mid June.

Record Flow (Date)
- 70,000 cfs (1997)

Projected Record Flow (Date)
- 150,000 cfs (Mid June)

Source of information: http://www.nwd-mr.usace.army.mil/rcc

US Army Corps of Engineers
Omaha District

Missouri River Mainstem 24-Hour Forecast Conditions (Updated 4 Jun; 0845 CDT)

Fort Peck	Garrison	Oahe	Big Bend	Fort Randall	Gavins Point
24-hr forecast (Glasgow, MT) **Today:** Partly sunny, with a high near 70. Calm wind becoming south around 6 mph. **Tonight:** Mostly clear, with a low around 51. South southwest wind around 8 mph becoming east. **Sunday:** Sunny, with a high near 80. East southeast wind 6 to 9 mph becoming west southwest.	***24-hr forecast (Riverdale, ND)*** **Today:** A 20 percent chance of showers and thunderstorms after 1pm. Partly sunny, with a high near 72. West wind between 5 and 11 mph. **Tonight:** A slight chance of showers before 1am. Mostly cloudy, with a low around 52. South wind between 3 and 6 mph. Chance of precipitation is 20%. **Sunday:** A 20 percent chance of showers and thunderstorms after 1pm. Mostly sunny, with a high near 81. Light south wind. ***24-hr forecast (Washburn, ND)*** **Today:** A 20 percent chance of showers and thunderstorms after 1pm. Partly sunny, with a high near 72. West wind between 5 and 10 mph. **Tonight:** A slight chance of showers before 1am. Mostly cloudy, with a low around 50. South wind between 3 and 7 mph. Chance of precipitation is 20%. **Sunday:** A 20 percent chance of showers and thunderstorms after 1pm. Mostly sunny, with a high near 81. South wind around 6 mph.	***24-hr forecast (Pierre, SD)*** **Today:** Sunny, with a high near 77. North northwest wind between 7 and 9 mph. **Tonight:** Mostly clear, with a low around 57. East southeast wind between 5 and 7 mph. **Sunday:** A 20 percent chance of showers and thunderstorms after 1pm. Mostly sunny, with a high near 88. South southeast wind between 7 and 15 mph. ***24-hr forecast (Ft. Pierre)*** **Today:** Sunny, with a high near 78. North northwest wind between 7 and 9 mph. **Tonight:** Mostly clear, with a low around 57. East southeast wind around 6 mph. **Sunday:** A 20 percent chance of showers and thunderstorms after 1pm. Mostly sunny, with a high near 89. South southeast wind between 6 and 15 mph.	***24-hr forecast (Lower Brule, SD)*** **Today:** Sunny, with a high near 79. North northwest wind around 9 mph. **Tonight:** Mostly clear, with a low around 56. East southeast wind between 3 and 6 mph. **Sunday:** A 20 percent chance of showers and thunderstorms after 1pm. Mostly sunny, with a high near 86. South southeast wind between 7 and 17 mph.	***24-hr forecast (Chamberlain, SD)*** **Today:** Sunny, with a high near 79. North northwest wind between 7 and 10 mph. **Tonight:** Partly cloudy, with a low around 56. East southeast wind around 6 mph. **Sunday:** A chance of showers and thunderstorms after 4pm. Partly sunny, with a high near 85. South southeast wind between 7 and 16 mph. Chance of precipitation is 30%.	***24-hr forecast (Yankton, SD)*** **Today:** Mostly sunny, with a high near 83. North northeast wind between 7 and 10 mph. **Tonight:** Partly cloudy, with a low around 60. Northeast wind between 3 and 9 mph. **Sunday:** A slight chance of showers and thunderstorms after 4pm. Mostly sunny, with a high near 86. East northeast wind at 11 mph becoming south southeast. Chance of precipitation is 20%. ***24-hr forecast (Sioux City, IA)*** **Today:** Partly sunny, with a high near 86. Northeast wind between 7 and 9 mph. **Tonight:** Partly cloudy, with a low around 61. East northeast wind between 3 and 8 mph. **Sunday:** A slight chance of showers and thunderstorms after 4pm. Mostly sunny, with a high near 86. East northeast wind 5 to 10 mph becoming south southeast. Chance of precipitation is 20%.

Source of information: http://www.weather.gov

US Army Corps of Engineers
Omaha District

Missouri River Mainstem 24-Hour Forecast Conditions (Updated 4 Jun; 0845 CDT)

Fort Peck	Garrison	Oahe	Big Bend	Fort Randall	Gavins Point
	24-hr forecast (Bismarck/Mandan, ND) **Today:** A 20 percent chance of showers and thunderstorms after 1pm. Partly sunny, with a high near 74. Northwest wind between 6 and 9 mph becoming calm. **Tonight:** A slight chance of showers before 1am. Partly cloudy, with a low around 51. Calm wind becoming east around 6 mph. Chance of precipitation is 20%. **Sunday:** A 20 percent chance of showers and thunderstorms after 1pm. Mostly sunny, with a high near 83. South wind between 5 and 9 mph.				***24-hr forecast (Omaha, NE)*** **Today:** A 30 percent chance of showers and thunderstorms, mainly after 4pm. Partly sunny, with a high near 85. East wind between 7 and 9 mph. New rainfall amounts of less than a tenth of an inch, except higher amounts possible in thunderstorms. **Tonight:** A 30 percent chance of showers and thunderstorms. Mostly cloudy, with a low around 63. East southeast wind between 3 and 8 mph. New rainfall amounts of less than a tenth of an inch, except higher amounts possible in thunderstorms. **Sunday:** A 20 percent chance of showers and thunderstorms. Partly sunny, with a high near 90. Southeast wind between 5 and 8 mph.

Source of information: http://www.weather.gov/
Internet: http://www.nwo.usace.army.mil
Facebook: http://www.facebook.com/OmahaUSACE
Twitter: http://www.twitter.com/OmahaUSACE
YouTube: http://www.youtube.com/OmahaUSACE
Flickr: http://www.flickr.com/photos/omahausace

[redacted] NWO

From: [redacted] NWD
Sent: Saturday, June 04, 2011 9:56 AM
To: Farhat, Jody S NWD02
Subject: Fw: Fax from Congressman Sam Graves (UNCLASSIFIED)

As discussed -

Message sent via my BlackBerry Wireless Device

----- Original Message -----
From: McMahon, John R BG NWD
To: [redacted] NWD; Hofmann, Anthony J COL NWK
Cc: [redacted] NWD; Blechinger, Erik T NWO
Sent: Fri Jun 03 20:10:35 2011
Subject: Re: Fax from Congressman Sam Graves (UNCLASSIFIED)

Thanks, Tony. You got it--let me and [redacted] know if you need anything.
Vr/John McMahon

----- Original Message -----
From: [redacted] NWD
To: Hofmann, Anthony J COL NWK; McMahon, John R BG NWD
Cc: [redacted] NWD; Blechinger, Erik T NWO
Sent: Fri Jun 03 17:55:11 2011
Subject: RE: Fax from Congressman Sam Graves (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: FOUO

And I am happy to assist in any way I can.

[redacted]

-----Original Message-----
From: Hofmann, Anthony J COL NWK
Sent: Friday, June 03, 2011 5:33 PM
To: McMahon, John R BG NWD; [redacted] NWD; [redacted] NWD; Blechinger, Erik T NWO
Subject: RE: Fax from Congressman Sam Graves (UNCLASSIFIED)

Sir-
My recommendation is for me, Erik Blechinger, Rex Goodnight and Jud Kneuvean to attend. Steve can man things at the District.

There is little risk in having only one officer here at the RFO. MAJ Evers can handle things here--it's not even a day. Likewise, this is a marathon, not a sprint.

For us not to have a presence from the uniformed side would not be good for NWD politically and it could come back to bite us down the road.

V/r,
Tony

Building Strong!

Colonel Anthony J. Hofmann, PMP
Commander, Kansas City District
U.S. Army Corps of Engineers

Office: (816) 389-3202
Fax: (816) 389-2027
http://www.nwk.usace.army.mil/

-----Original Message-----
From: McMahon, John R BG NWD
Sent: Friday, June 03, 2011 5:37 PM
To: Hofmann, Anthony J COL NWK; [redacted] NWD; [redacted] NWD; Blechinger, Erik T NWO
Subject: Fw: Fax from Congressman Sam Graves (UNCLASSIFIED)

Tony:
Could you do this next Fri--I plan to be on leave for my youngest son's wedding on Sat--have rehearsal dinner duties on Fri eve--alternatively, I could ask Witt or Erik to go--thoughts? Want to keep COL Tipton in Portland. Your priority is still Joplin and ASACW visit. Thanks.
Vr/John McMahon

----- Original Message -----
From: [redacted] NWD
To: McMahon, John R BG NWD
Cc: [redacted] NWD; [redacted] NWD; Tipton, Robert A Col NWD; Ruch, Robert J COL NWO
Sent: Fri Jun 03 15:30:11 2011
Subject: Fax from Congressman Sam Graves (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: FOUO

Good Afternoon,

Just received a fax for you from Congressman Sam Graves of Missouri about the planned releases from Gavins Point; also inviting you for a windshield tour ("and other delegation members") on Friday, June 10.

Hope everything will go along well for all your visits the next few days! Take care.

Best Regards,
[redacted]

[redacted]
Executive Secretary
U.S. Army Corps of Engineers
1125 NW Couch Street, Suite 500
Portland, OR 97209
Ph: [redacted]

Attachment Classification: UNCLASSIFIED
Attachment Caveats: NONE

Classification: UNCLASSIFIED
Caveats: FOUO

Classification: UNCLASSIFIED
Caveats: FOUO

[redacted] NWO

From: Farmer, Monique L NWO
Sent: Saturday, June 04, 2011 9:51 AM
To: Farhat, Jody S NWD02
Subject: FW: Senator Johanns e-Update: Nebraska Flood Response (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

Jody:

Just FYI. I think we have been clear in our messaging regarding how we operate and the fact that we evacuated floodwaters all winter long. It is important that we keep pounding that message with the locals so there is no misunderstanding that this flooding has been caused by these heavy rains upstream.

V r,

Monique

-----Original Message-----
From: Mike_Johanns@Johanns.senate.gov [mailto:Mike_Johanns@Johanns.senate.gov]
Sent: Saturday, June 04, 2011 12:16 AM
To: Farmer, Monique L NWO
Subject: Senator Johanns e-Update: Nebraska Flood Response

Senator Johanns e-Update<http://johanns.senate.gov/public/?a=Files.Serve&File_id=4bccd413-8116-4a12-8d33-127b17db2764>
Senator Johanns e-Update
June 3, 2011

Today I visited <http://johanns.senate.gov/public/?p=PressReleases&ContentRecord_id=2217b628-cb28-4bfa-8b9f-4cc10c011f67> some of the flood affected areas in Northeast Nebraska and the devastation is heartbreaking. In Ft. Calhoun and throughout Washington County, many have already been forced to evacuate as homes, businesses and fields are inundated with water. In South Sioux City, residents are preparing for the same by sandbagging and bracing to evacuate. State and local officials are doing a great job informing those affected, and I intend to do all I can to ascertain why it took so long to release the water upstream. I'm confident that the resolve of Nebraskans and our longstanding tradition of neighbor helping neighbor will pull us through this challenge, just as it always has during difficult times.

For more flood response information, I invite you to visit my Flood Response Webpage <http://johanns.senate.gov/public/index.cfm?p=spring-2011-flood-response> for updates on evacuation plans, shelters and flood protection efforts.

Pictures of Sen. Johanns' tour of flood affected areas can be found on Facebook <http://www.facebook.com/MikeJohanns>

To unsubscribe, email unsubscribe@johanns.senate.gov.

Classification: UNCLASSIFIED
Caveats: NONE

[redacted] NWO

From: Williamson, Eileen L NWO
Sent: Saturday, June 04, 2011 9:47 AM
To: DLL-CENWO-EOC CMT-ALL
Subject: Riverwatch - Daily Update - June 4, 2011 (UNCLASSIFIED)
Attachments: Flood_Fight_Storyboard_4JUN.docx

Classification: UNCLASSIFIED
Caveats: NONE

Missouri River Mainstem Reservoir Bulletin (Updated 4 Jun; 0845 CDT)

Fort Peck (In operation since 1940)

Midnight Elevation

* 2250.2 ft msl

* 24-hr Change (+0.2 ft)

Daily Avg. Inflow

* 56,000 cfs (3 Jun)

* 73,000 cfs (2 Jun)

Daily Avg. Release

* 19,000 cfs (3 Jun)

* 13,000 cfs (2 Jun)

Annual Flood Ctrl & Multi-Use Zone (Elevation)

* 2234 ft msl - 2246 ft msl

Exclusive Flood Ctrl Zone (Elevation)

* 2246 ft msl - 2250 ft msl

Top of Spillway Gates

* 2250 ft msl

Planned Scheduled Releases (Subject to Change)

* Peak release will be 50,000 cfs by no later than mid June.

* Reservoir will use several feet of surcharge storage above the exclusive flood control pool as spillway gates are raised.

Record Flow (Year)

* 35,000 cfs (1975)

Projected Record Flow (Date)

* 50,000 cfs (Mid June)

Garrison (In operation since 1955)

Midnight Elevation

* 1853.7 ft msl

* 24-hr Change (-0.1 ft)

Daily Avg. Inflow

* 133,000 cfs (3 Jun)

* 130,000 cfs (2 Jun)

Daily Avg. Release

* 113,200 cfs (3 Jun)

* 105,000 cfs (2 Jun)

Annual Flood Ctrl & Multi-Use Zone (Elevation)

* 1837.5 ft msl - 1850 ft msl

Exclusive Flood Ctrl Zone (Elevation)

* 1850 ft msl - 1854 ft msl

Top of Spillway Gates

* 1854 ft msl

River Stage (Bismarck)

* 17.24 (0830 CDT 4 Jun)

* Flood stage - 16 ft

* 16.78 (0615 CDT 3 Jun)

Planned Scheduled Releases (Subject to Change)

* Releases will be stepped up to 150,000 cfs by mid June.

* Reservoir will use several feet of surcharge storage above exclusive flood control pool as spillway gates are raised.

* First time in history, spillway gates will be used to pass floodwaters.

Record Flow (Year)

* 65,000 cfs (1975)

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* 150,000 cfs (Mid June)

Oahe (In operation since 1962)

Midnight Elevation

* 1619.1 ft msl

* 24-hr Change (+0.2 ft)

Daily Avg. Inflow

* 104,000 cfs (3 Jun)

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Daily Avg. Release

* 94,200 cfs (3 Jun)

* 86,900 cfs (2 Jun)

Annual Flood Ctrl & Multi-Use Zone (Elevation)

* 1607.5 ft msl - 1620 ft msl

Exclusive Flood Ctrl Zone (Elevation)

* 1617 ft msl - 1620 ft msl

Top of Spillway Gates

* 1620 ft msl

River Stage (Pierre)

* 16.38 (0815 CDT 3 Jun)

* Flood stage - 15 ft

* 15.21 (0615 CDT 3 Jun)

Planned Scheduled Releases (Subject to Change)

* Releases will be stepped up to 150,000 cfs by mid June.

* Reservoir will peak within a foot of the top of the spillway gates at 1619 feet.

Record Flow (Year)

* 59,000 cfs (1997)

Projected Record Flow (Date)

* 150,000 cfs (Mid June)

Big Bend (In operation since 1964)

Midnight Elevation

* 1419.4 ft msl

* 24-hr Change (-0.3 ft)

Daily Avg. Inflow

* 83,000 cfs (3 Jun)

* 82,000 cfs (2 Jun)

Daily Avg. Release

* 89,100 cfs (3 Jun)

* 77,900 cfs (2 Jun)

Annual Flood Ctrl & Multi-Use

Zone (Elevation)

* 1420 ft msl - 1423 ft msl

Exclusive Flood Ctrl Zone (Elevation)

* 1422 ft msl - 1423 ft msl

Top of Spillway Gates

* 1423 ft msl

Planned Scheduled Releases (Subject to Change)

* Releases will be stepped up to 150,000 cfs by mid June.

* Reservoir will remain essentially level at 1420 feet.

Record Flow (Date)

* 74,000 cfs (1997)

Projected Record Flow (Date)

* 150,000 cfs (Mid June)

Fort Randall (In operation since 1953)

Midnight Elevation

* 1360.2 ft msl

* 24-hr Change (+0.1 ft)

Daily Avg. Inflow

* 97,000 cfs (3 Jun)

* 85,000 cfs (2 Jun)

Daily Avg. Release

* 91,200 cfs (3 Jun)

* 83,100 cfs (2 Jun)

Annual Flood Ctrl & Multi-Use Zone (Elevation)

* 1350 ft msl - 1375 ft msl

Exclusive Flood Ctrl Zone (Elevation)

* 1365 ft msl - 1375 ft msl

Top of Spillway Gates

* 1375 ft msl

Planned Scheduled Releases (Subject to Change)

* Releases will be stepped up to 150,000 cfs by mid June.

Record Flow (Date)

* 67,000 cfs (1997)

Projected Record Flow (Date)

* 150,000 cfs (Mid June)

Gavins Point (In operation since 1955)

Midnight Elevation

* 1206.3 ft msl

* 24-hr Change (+0.0 ft)

Daily Avg. Inflow

* 83,000 cfs (3 Jun)

* 83,000 cfs (2 Jun)

Daily Avg. Release

* 84,900 cfs (3 Jun)

* 83,700 cfs (2 Jun)

Annual Flood Ctrl & Multi-Use Zone (Elevation)

* 1204.5 ft msl - 1210 ft msl

Exclusive Flood Ctrl Zone (Elevation)

* 1208 ft msl - 1210 ft msl

Top of Spillway Gates

* 1210 ft msl

Planned Scheduled Releases (Subject to Change)

* Releases will be stepped up to 150,000 cfs by mid June.

Record Flow (Date)

* 70,000 cfs (1997)

Projected Record Flow (Date)

* 150,000 cfs (Mid June)

Source of information: http://www.nwd-mr.usace.army.mil/rcc

Missouri River Mainstem 24-Hour Forecast Conditions (Updated 4 Jun; 0845 CDT)

****

24-hr forecast (Glasgow, MT)

Today: Partly sunny, with a high near 70. Calm wind becoming south around 6 mph.

Tonight: Mostly clear, with a low around 51. South southwest wind around 8 mph becoming east.

Sunday: Sunny, with a high near 80. East southeast wind 6 to 9 mph becoming west southwest.

****

24-hr forecast (Riverdale, ND)

Today: A 20 percent chance of showers and thunderstorms after 1pm. Partly sunny, with a high near 72. West wind between 5 and 11 mph.

Tonight: A slight chance of showers before 1am. Mostly cloudy, with a low around 52. South wind between 3 and 6 mph. Chance of precipitation is 20%.

Sunday: A 20 percent chance of showers and thunderstorms after 1pm. Mostly sunny, with a high near 81. Light south wind.

****

24-hr forecast (Washburn, ND)

Today: A 20 percent chance of showers and thunderstorms after 1pm. Partly sunny, with a high near 72. West wind between 5 and 10 mph.

Tonight: A slight chance of showers before 1am. Mostly cloudy, with a low around 50. South wind between 3 and 7 mph. Chance of precipitation is 20%.

Sunday: A 20 percent chance of showers and thunderstorms after 1pm. Mostly sunny, with a high near 81. South wind around 6 mph.

****

24-hr forecast (Bismarck/Mandan, ND)

Today: A 20 percent chance of showers and thunderstorms after 1pm. Partly sunny, with a high near 74. Northwest wind between 6 and 9 mph becoming calm.

Tonight: A slight chance of showers before 1am. Partly cloudy, with a low around 51. Calm wind becoming east around 6 mph. Chance of precipitation is 20%.

Sunday: A 20 percent chance of showers and thunderstorms after 1pm. Mostly sunny, with a high near 83. South wind between 5 and 9 mph.

****

24-hr forecast (Pierre, SD)

Today: Sunny, with a high near 77. North northwest wind between 7 and 9 mph.

Tonight: Mostly clear, with a low around 57. East southeast wind between 5 and 7 mph.

Sunday: A 20 percent chance of showers and thunderstorms after 1pm. Mostly sunny, with a high near 88. South southeast wind between 7 and 15 mph.

****

24-hr forecast (Ft. Pierre, SD)

Today: Sunny, with a high near 78. North northwest wind between 7 and 9 mph.

Tonight: Mostly clear, with a low around 57. East southeast wind around 6 mph.

Sunday: A 20 percent chance of showers and thunderstorms after 1pm. Mostly sunny, with a high near 89. South southeast wind between 6 and 15 mph.

****

24-hr forecast (Lower Brule, SD)

Today: Sunny, with a high near 79. North northwest wind around 9 mph.

Tonight: Mostly clear, with a low around 56. East southeast wind between 3 and 6 mph.

Sunday: A 20 percent chance of showers and thunderstorms after 1pm. Mostly sunny, with a high near 86. South southeast wind between 7 and 17 mph.

****

24-hr forecast (Chamberlain, SD)

Today: Sunny, with a high near 79. North northwest wind between 7 and 10 mph.

Tonight: Partly cloudy, with a low around 56. East southeast wind around 6 mph.

Sunday: A chance of showers and thunderstorms after 4pm. Partly sunny, with a high near 85. South southeast wind between 7 and 16 mph. Chance of precipitation is 30%.

****

24-hr forecast (Yankton, SD)

Today: Mostly sunny, with a high near 83. North northeast wind between 7 and 10 mph.

Tonight: Partly cloudy, with a low around 60. Northeast wind between 3 and 9 mph.

Sunday: A slight chance of showers and thunderstorms after 4pm. Mostly sunny, with a high near 86. East northeast wind at 11 mph becoming south southeast. Chance of precipitation is 20%.

****

24-hr forecast (Sioux City, IA)

Today: Partly sunny, with a high near 86. Northeast wind between 7 and 9 mph.

Tonight: Partly cloudy, with a low around 61. East northeast wind between 3 and 8 mph.

Sunday: A slight chance of showers and thunderstorms after 4pm. Mostly sunny, with a high near 86. East northeast wind 5 to 10 mph becoming south southeast. Chance of precipitation is 20%.

****

24-hr forecast (Omaha, NE)

Today: A 30 percent chance of showers and thunderstorms, mainly after 4pm. Partly sunny, with a high near 85. East wind between 7 and 9 mph. New rainfall amounts of less than a tenth of an inch, except higher amounts possible in thunderstorms.

Tonight: A 30 percent chance of showers and thunderstorms. Mostly cloudy, with a low around 63. East southeast wind between 3 and 8 mph. New rainfall amounts of less than a tenth of an inch, except higher amounts possible in thunderstorms.

Sunday: A 20 percent chance of showers and thunderstorms. Partly sunny, with a high near 90. Southeast wind between 5 and 8 mph.

Source of information: http://www.weather.gov/

Internet: http://www.nwo.usace.army.mil

Facebook: http://www.facebook.com/OmahaUSACE

Twitter: http://www.twitter.com/OmahaUSACE

YouTube: http://www.youtube.com/OmahaUSACE

Flickr: http://www.flickr.com/photos/omahausace

ALL INFORMATION BELOW SHOULD BE CONSIDERED FOUO

Missouri River Flooding (Logistics) (Updated 4 Jun; 0845 CDT)

Personnel Deployed

4 (Glasgow, MT)

12 (Lander, WY)

16 (Bismarck, ND)

6 (Fort Yates, ND)

4 (Williston, ND)

1 (Minot, ND)

7 (Pierre, SD)

1 (Kansas City, MO)

4 (Sioux City, IA)

6 (Dakota Dunes, SD)

5 (S. Sioux City, NE)

2 (Missouri River Survey)

1 (Decatur, NE)

3 (Offutt, NE)

11 (North Platte, NE)

1 (Yankton, SD)

Equipment Deployed 3 June 1045 hrs

HESCO

Issued: 28,040 LF

On Hand: 6270 LF (5415 LF-4' and 855 LF of 3')

Projected Outstanding Requirements: 52,000 LF

Currently working on: 26,000 LF due in from Louisiana Friday / Saturday

Poly Rolls

Issued: 1420 rolls

On Hand: 50 rolls.

Projected Outstanding Requirements: 2500 rolls

District Contracting obtained 1200 rolls, will be here by 7 Jun

Contract awarded for 1500 rolls 400 rolls due in from LA

Pumps

Issued: 16 pumps

On Hand: ZERO

Projected Outstanding Requirements: 12 pumps

District Contracting working solicitations for 12 pumps

Additional Supplies due in:

1280 LF of RDFW from LA

1K ea 2K sandbags from LA

Sandbags

Issued: 12.8 M

On Hand: 1,707,000.

Projected Outstanding Requirements: 11.25 M

Currently working on: 1.5 M due in tomorrow,

District Contracting has 2.5 M due in from Vendor 8 Jun

650K due in from CE-NWS

Source of information: CMT Brief (3 Jun 11)

Classification: UNCLASSIFIED
Caveats: NONE

US Army Corps of Engineers
Omaha District

Missouri River Mainstem Reservoir Bulletin (Updated 4 Jun; 0845 CDT)

Fort Peck
(In operation since 1940)

Midnight Elevation
- 2250.2 ft msl
- 24-hr Change (+0.2 ft)

Daily Avg. Inflow
- 56,000 cfs (3 Jun)
- 73,000 cfs (2 Jun)

Daily Avg. Release
- 19,000 cfs (3 Jun)
- 13,000 cfs (2 Jun)

Annual Flood Ctrl & Multi-Use Zone (Elevation)
- 2234 ft msl – 2246 ft msl

Exclusive Flood Ctrl Zone (Elevation)
- 2246 ft msl – 2250 ft msl

Top of Spillway Gates
- 2250 ft msl

Planned Scheduled Releases (Subject to Change)
- Peak release will be 50,000 cfs by no later than mid June.
- Reservoir will use several feet of surcharge storage above the exclusive flood control pool as spillway gates are raised.

Record Flow (Year)
- 35,000 cfs (1975)

Projected Record Flow (Date)
- 50,000 cfs (Mid June)

Garrison
(In operation since 1955)

Midnight Elevation
- 1853.7 ft msl
- 24-hr Change (-0.1 ft)

Daily Avg. Inflow
- 133,000 cfs (3 Jun)
- 130,000 cfs (2 Jun)

Daily Avg. Release
- 113,200 cfs (3 Jun)
- 105,000 cfs (2 Jun)

Annual Flood Ctrl & Multi-Use Zone (Elevation)
- 1837.5 ft msl – 1850 ft msl

Exclusive Flood Ctrl Zone (Elevation)
- 1850 ft msl – 1854 ft msl

Top of Spillway Gates
- 1854 ft msl

River Stage (Bismarck)
- 17.24 (0830 CDT 4 Jun)
- Flood stage – 16 ft
- 16.78 (0615 CDT 3 Jun)

Planned Scheduled Releases (Subject to Change)
- Releases will be stepped up to 150,000 cfs by mid June.
- Reservoir will use several feet of surcharge storage above exclusive flood control pool as spillway gates are raised.
- First time in history, spillway gates will be used to pass floodwaters.

Record Flow (Year)
- 65,000 cfs (1975)

Projected Record Flow (Date)
- 150,000 cfs (Mid June)

Oahe
(In operation since 1962)

Midnight Elevation
- 1619.1 ft msl
- 24-hr Change (+0.2 ft)

Daily Avg. Inflow
- 104,000 cfs (3 Jun)
- 100,000 cfs (2 Jun)

Daily Avg. Release
- 94,200 cfs (3 Jun)
- 86,900 cfs (2 Jun)

Annual Flood Ctrl & Multi-Use Zone (Elevation)
- 1607.5 ft msl – 1620 ft msl

Exclusive Flood Ctrl Zone (Elevation)
- 1617 ft msl – 1620 ft msl

Top of Spillway Gates
- 1620 ft msl

River Stage (Pierre)
- 16.38 (0815 CDT 3 Jun)
- Flood stage – 15 ft
- 15.21 (0615 CDT 3 Jun)

Planned Scheduled Releases (Subject to Change)
- Releases will be stepped up to 150,000 cfs by mid June.
- Reservoir will peak within a foot of the top of the spillway gates at 1619 feet.

Record Flow (Year)
- 59,000 cfs (1997)

Projected Record Flow (Date)
- 150,000 cfs (Mid June)

Big Bend
(In operation since 1964)

Midnight Elevation
- 1419.4 ft msl
- 24-hr Change (-0.3 ft)

Daily Avg. Inflow
- 83,000 cfs (3 Jun)
- 82,000 cfs (2 Jun)

Daily Avg. Release
- 89,100 cfs (3 Jun)
- 77,900 cfs (2 Jun)

Annual Flood Ctrl & Multi-Use Zone (Elevation)
- 1420 ft msl – 1423 ft msl

Exclusive Flood Ctrl Zone (Elevation)
- 1422 ft msl – 1423 ft msl

Top of Spillway Gates
- 1423 ft msl

Planned Scheduled Releases (Subject to Change)
- Releases will be stepped up to 150,000 cfs by mid June.
- Reservoir will remain essentially level at 1420 feet.

Record Flow (Date)
- 74,000 cfs (1997)

Projected Record Flow (Date)
- 150,000 cfs (Mid June)

Fort Randall
(In operation since 1953)

Midnight Elevation
- 1360.2 ft msl
- 24-hr Change (+0.1 ft)

Daily Avg. Inflow
- 97,000 cfs (3 Jun)
- 85,000 cfs (2 Jun)

Daily Avg. Release
- 91,200 cfs (3 Jun)
- 83,100 cfs (2 Jun)

Annual Flood Ctrl & Multi-Use Zone (Elevation)
- 1350 ft msl – 1375 ft msl

Exclusive Flood Ctrl Zone (Elevation)
- 1365 ft msl – 1375 ft msl

Top of Spillway Gates
- 1375 ft msl

Planned Scheduled Releases (Subject to Change)
- Releases will be stepped up to 150,000 cfs by mid June.

Record Flow (Date)
- 67,000 cfs (1997)

Projected Record Flow (Date)
- 150,000 cfs (Mid June)

Gavins Point
(In operation since 1955)

Midnight Elevation
- 1206.3 ft msl
- 24-hr Change (+0.0 ft)

Daily Avg. Inflow
- 83,000 cfs (3 Jun)
- 83,000 cfs (2 Jun)

Daily Avg. Release
- 84,900 cfs (3 Jun)
- 83,700 cfs (2 Jun)

Annual Flood Ctrl & Multi-Use Zone (Elevation)
- 1204.5 ft msl – 1210 ft msl

Exclusive Flood Ctrl Zone (Elevation)
- 1208 ft msl – 1210 ft msl

Top of Spillway Gates
- 1210 ft msl

Planned Scheduled Releases (Subject to Change)
- Releases will be stepped up to 150,000 cfs by mid June.

Record Flow (Date)
- 70,000 cfs (1997)

Projected Record Flow (Date)
- 150,000 cfs (Mid June)

Source of information: http://www.nwd-mr.usace.army.mil/rcc

US Army Corps of Engineers
Omaha District

Missouri River Mainstem 24-Hour Forecast Conditions (Updated 4 Jun; 0845 CDT)

Fort Peck	Garrison	Oahe	Big Bend	Fort Randall	Gavins Point
24-hr forecast (Glasgow, MT) **Today:** Partly sunny, with a high near 70. Calm wind becoming south around 6 mph. **Tonight:** Mostly clear, with a low around 51. South southwest wind around 8 mph becoming east. **Sunday:** Sunny, with a high near 80. East southeast wind 6 to 9 mph becoming west southwest.	***24-hr forecast (Riverdale, ND)*** **Today:** A 20 percent chance of showers and thunderstorms after 1pm. Partly sunny, with a high near 72. West wind between 5 and 11 mph. **Tonight:** A slight chance of showers before 1am. Mostly cloudy, with a low around 52. South wind between 3 and 6 mph. Chance of precipitation is 20%. **Sunday:** A 20 percent chance of showers and thunderstorms after 1pm. Mostly sunny, with a high near 81. Light south wind. ***24-hr forecast (Washburn, ND)*** **Today:** A 20 percent chance of showers and thunderstorms after 1pm. Partly sunny, with a high near 72. West wind between 5 and 10 mph. **Tonight:** A slight chance of showers before 1am. Mostly cloudy, with a low around 50. South wind between 3 and 7 mph. Chance of precipitation is 20%. **Sunday:** A 20 percent chance of showers and thunderstorms after 1pm. Mostly sunny, with a high near 81. South wind around 6 mph.	***24-hr forecast (Pierre, SD)*** **Today:** Sunny, with a high near 77. North northwest wind between 7 and 9 mph. **Tonight:** Mostly clear, with a low around 57. East southeast wind between 5 and 7 mph. **Sunday:** A 20 percent chance of showers and thunderstorms after 1pm. Mostly sunny, with a high near 88. South southeast wind between 7 and 15 mph. ***24-hr forecast (Ft. Pierre)*** **Today:** Sunny, with a high near 78. North northwest wind between 7 and 9 mph. **Tonight:** Mostly clear, with a low around 57. East southeast wind around 6 mph. **Sunday:** A 20 percent chance of showers and thunderstorms after 1pm. Mostly sunny, with a high near 89. South southeast wind between 6 and 15 mph.	***24-hr forecast (Lower Brule, SD)*** **Today:** Sunny, with a high near 79. North northwest wind around 9 mph. **Tonight:** Mostly clear, with a low around 56. East southeast wind between 3 and 6 mph. **Sunday:** A 20 percent chance of showers and thunderstorms after 1pm. Mostly sunny, with a high near 86. South southeast wind between 7 and 17 mph.	***24-hr forecast (Chamberlain, SD)*** **Today:** Sunny, with a high near 79. North northwest wind between 7 and 10 mph. **Tonight:** Partly cloudy, with a low around 56. East southeast wind around 6 mph. **Sunday:** A chance of showers and thunderstorms after 4pm. Partly sunny, with a high near 85. South southeast wind between 7 and 16 mph. Chance of precipitation is 30%.	***24-hr forecast (Yankton, SD)*** **Today:** Mostly sunny, with a high near 83. North northeast wind between 7 and 10 mph. **Tonight:** Partly cloudy, with a low around 60. Northeast wind between 3 and 9 mph. **Sunday:** A slight chance of showers and thunderstorms after 4pm. Mostly sunny, with a high near 86. East northeast wind at 11 mph becoming south southeast. Chance of precipitation is 20%. ***24-hr forecast (Sioux City, IA)*** **Today:** Partly sunny, with a high near 86. Northeast wind between 7 and 9 mph. **Tonight:** Partly cloudy, with a low around 61. East northeast wind between 3 and 8 mph. **Sunday:** A slight chance of showers and thunderstorms after 4pm. Mostly sunny, with a high near 86. East northeast wind 5 to 10 mph becoming south southeast. Chance of precipitation is 20%.

Source of information: http://www.weather.gov

US Army Corps of Engineers
Omaha District

Missouri River Mainstem 24-Hour Forecast Conditions (Updated 4 Jun; 0845 CDT)

Fort Peck	Garrison	Oahe	Big Bend	Fort Randall	Gavins Point
	24-hr forecast (Bismarck/Mandan, ND) **Today:** A 20 percent chance of showers and thunderstorms after 1pm. Partly sunny, with a high near 74. Northwest wind between 6 and 9 mph becoming calm. **Tonight:** A slight chance of showers before 1am. Partly cloudy, with a low around 51. Calm wind becoming east around 6 mph. Chance of precipitation is 20%. **Sunday:** A 20 percent chance of showers and thunderstorms after 1pm. Mostly sunny, with a high near 83. South wind between 5 and 9 mph.				***24-hr forecast (Omaha, NE)*** **Today:** A 30 percent chance of showers and thunderstorms, mainly after 4pm. Partly sunny, with a high near 85. East wind between 7 and 9 mph. New rainfall amounts of less than a tenth of an inch, except higher amounts possible in thunderstorms. **Tonight:** A 30 percent chance of showers and thunderstorms. Mostly cloudy, with a low around 63. East southeast wind between 3 and 8 mph. New rainfall amounts of less than a tenth of an inch, except higher amounts possible in thunderstorms. **Sunday:** A 20 percent chance of showers and thunderstorms. Partly sunny, with a high near 90. Southeast wind between 5 and 8 mph.

Source of information: http://www.weather.gov/
Internet: http://www.nwo.usace.army.mil
Facebook: http://www.facebook.com/OmahaUSACE
Twitter: http://www.twitter.com/OmahaUSACE
YouTube: http://www.youtube.com/OmahaUSACE
Flickr: http://www.flickr.com/photos/omahausace

US Army Corps
of Engineers
Omaha District

Missouri River Flooding (Logistics) (Updated 4 Jun; 0845 CDT)

Personnel Deployed

4 (Glasgow, MT)	7 (Pierre, SD)	2 (Missouri River Survey)
12 (Lander, WY)	1 (Kansas City, MO)	1 (Decatur, NE)
16 (Bismarck, ND)	4 (Sioux City, IA)	3 (Offutt, NE)
6 (Fort Yates, ND)	6 (Dakota Dunes, SD)	11 (North Platte, NE)
4 (Williston, ND)	5 (S. Sioux City, NE)	1 (Yankton, SD)
1 (Minot, ND)		

Equipment Deployed 3 June 1045 hrs

HESCO
Issued: 28,040 LF
On Hand: 6270 LF (5415 LF-4' and 855 LF of 3')
Projected Outstanding Requirements: 52,000 LF
Currently working on: 26,000 LF due in from Louisiana Friday / Saturday

Poly Rolls
Issued: 1420 rolls
On Hand: 50 rolls.
Projected Outstanding Requirements: 2500 rolls
District Contracting obtained 1200 rolls, will be here by 7 Jun
Contract awarded for 1500 rolls 400 rolls due in from LA

Pumps
Issued: 16 pumps
On Hand: ZERO
Projected Outstanding Requirements: 12 pumps
District Contracting working solicitations for 12 pumps

Additional Supplies due in:
1280 LF of RDFW from LA
1K ea 2K sandbags from LA

Sandbags
Issued: 12.8 M
On Hand: 1,707,000.
Projected Outstanding Requirements: 11.25 M
Currently working on: 1.5 M due in tomorrow,
District Contracting has 2.5 M due in from Vendor 8 Jun
650K due in from CE-NWS

Source of information: CMT Brief (3 Jun 11)

[redacted] NWO

From: Williamson, Eileen L NWO
Sent: Saturday, June 04, 2011 9:40 AM
To: Farhat, Jody S NWD02; Farmer, Monique L NWO
Cc: Oldham, Margaret NWO; Ruch, Robert J COL NWO; [redacted] NWO
Subject: Explaining the water. (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

While an acre-inch of water equals 27,154 gallons of water. How that water behaves can be very different.

Take a dry sponge and pour a cup of water over it. It might not have any water on the counter. That would be an inch of water over someplace like Texas where they are in severe drought.

But, if you continue pouring water on that sponge, eventually it stops absorbing the water and water will run out of the sponge. That is where Montana was last year. This area of Montana had record rainfall in 2010. Then, over the winter, a lot of snow fell.

So, back to that sponge full of water, if you have snow sitting on that sponge full of water(probably somewhat frozen during the winter), the snow sitting on the sponge doesn't go anywhere. That is where Montana was in the early spring.

While the reservoir had full flood storage capacity before the start of the 2011 runoff season, the ground was still somewhat saturated.

Then, in early April and in mid-May, that area of Montana saw record rainfall. Now, pour another cup (or two) of water on the sponge full of water and covered with snow: some of the snow melts and runs off and the water that is poured on the sponge runs off.

Then, as temperatures warm-up, the snow melts and runs off too. This is a somewhat basic explanation of where the water is coming from.

****

Eileen L. Williamson

Public Affairs Specialist

U.S. Army Corps of Engineers

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Internet: nwo.usace.army.mil <https://www.nwo.usace.army.mil/>

Facebook: facebook.com/OmahaUSACE <http://www.facebook.com/OmahaUSACE>

Twitter: twitter.com/OmahaUSACE <http://www.twitter.com/OmahaUSACE>

****

Classification: UNCLASSIFIED
Caveats: NONE

[redacted] NWO

From: [redacted] NWD02
Sent: Saturday, June 04, 2011 9:40 AM
To: Farhat, Jody S NWD02
Subject: RE: Omaha Unregulated Flow (UNCLASSIFIED)
Attachments: OMA_holdouts.pdf; Omaha_unreg_flow_2011.pptx

Classification: UNCLASSIFIED
Caveats: NONE

I'm confused. Attached is what is in our database (OMA_holdouts.pdf), which should be what Ann Marie computed with holdouts. I'm not sure if her work is complete. Is Doug Clemetson doing this independently (.pptx)?

[redacted].
Reservoir Regulation Team Lead
Missouri River Basin Water Management,
Northwestern Division, USACE
[redacted]
[redacted] (fax)

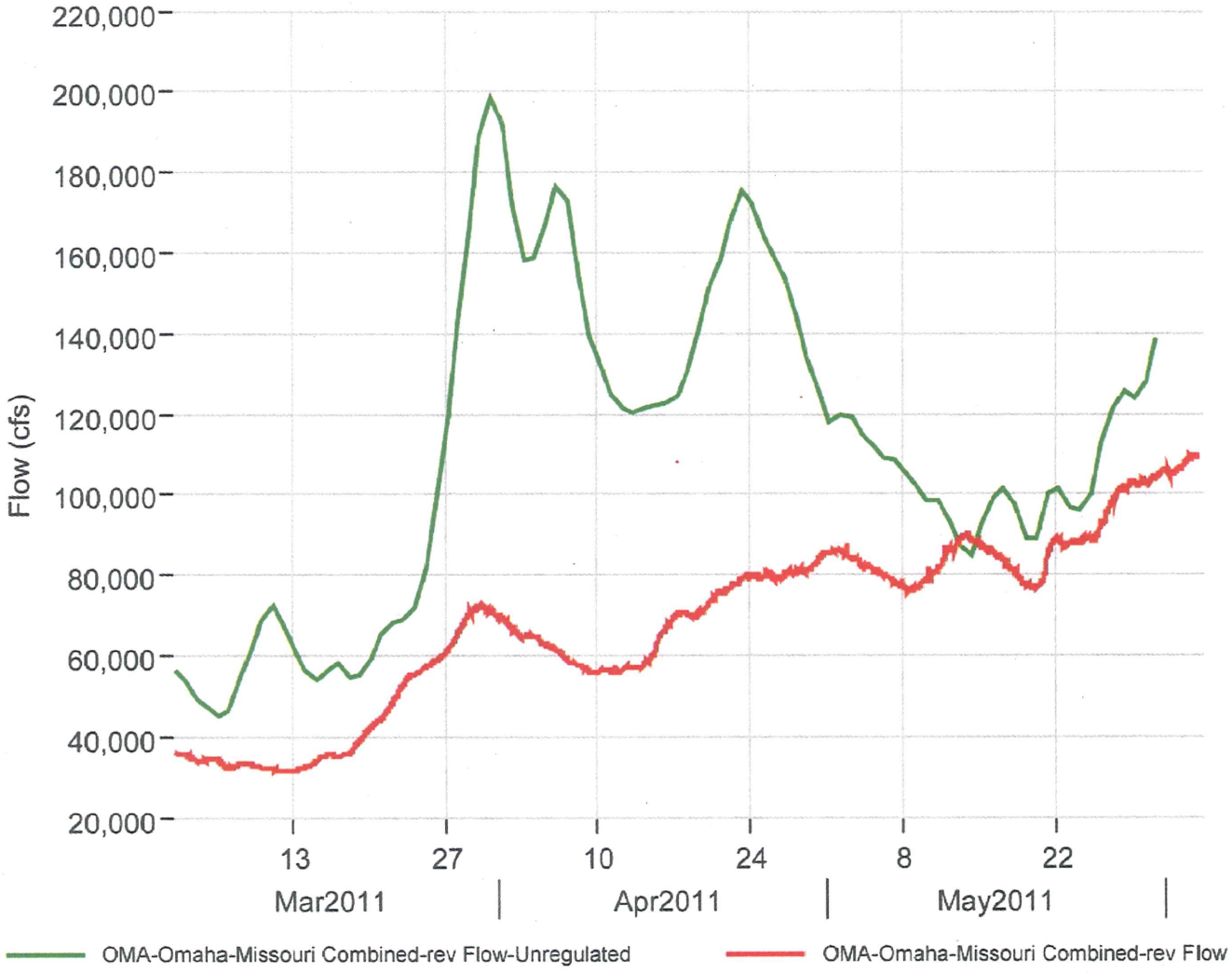
-----Original Message-----
From: [redacted] NWO
Sent: Saturday, June 04, 2011 9:29 AM
To: Farhat, Jody S NWD02; [redacted] NWD02
Cc: [redacted] NWO; [redacted] NWO
Subject: Omaha Unregulated Flow

Jody and Kevin,

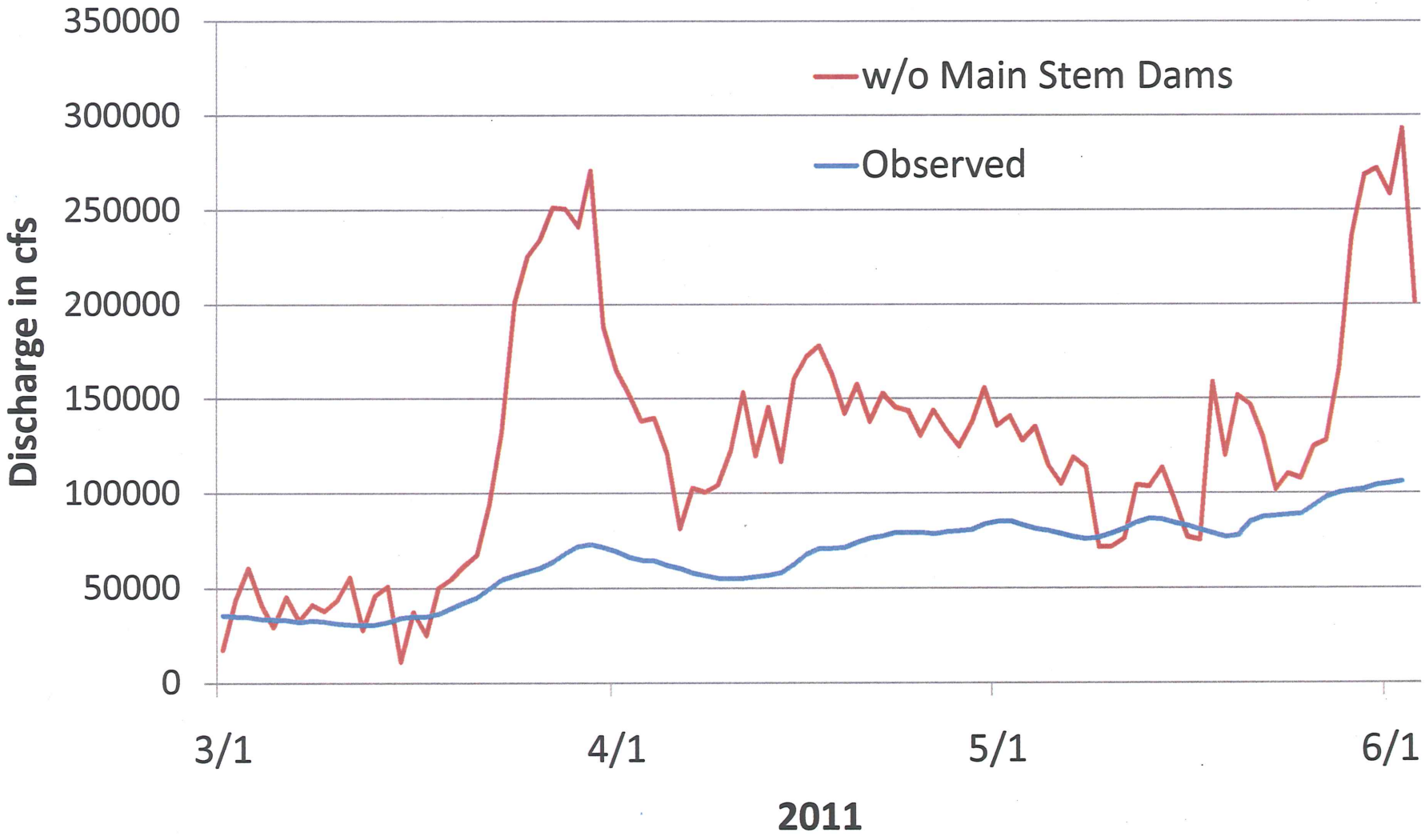
Attached is a slide with unregulated flow at Omaha compared to observed. This will be in todays CMT brief. This include only main stem holdouts routed to Omaha.

[redacted]
Chief, Hydrology Section
Omaha District
US Army Corps of Engineers
1616 Capitol Ave
Omaha, Nebraska 68102
[redacted]

Classification: UNCLASSIFIED
Caveats: NONE


220,000
200,000
180,000
160,000
140,000
120,000
100,000
80,000
60,000
40,000
20,000
Flow (cfs)
13
27
10
24
8
22
Mar2011
Apr2011
May2011
OMA-Omaha-Missouri Combined-rev Flow-Unregulated
OMA-Omaha-Missouri Combined-rev Flow

Missouri River At Omaha



[redacted]NWO

From: [redacted]NWO
Sent: Saturday, June 04, 2011 9:30 AM
To: [redacted] NWD02; [redacted] NWD02; [redacted] NWD02; [redacted] NWD02; [redacted] NWD02; [redacted] NWD02; Farhat, Jody S NWD02
Subject: Revised Gavins Releases

All,

Scheduled releases for Gavins Point in FUI (should be reflected in the updated 3 week forecast) will be adjusted today as follows:

(bold indicates change from 6/3 Three Week forecast)

June 4: 100k
June 5: 100k
June 6: 110k
June 7: 120k
June 8: 130k
June 9: 140k
June 10: 145k
June 11: 145k
June 12: 145k
June 13: 145k
June 14: 150k

[redacted]
Hydraulic Engineer
Reservoir Regulation Team
Missouri River Basin Water Management
Northwestern Division, U.S. Army Corps of Engineers
1616 Capitol Ave.
Omaha, NE 68102
[redacted]

[redacted] NWO

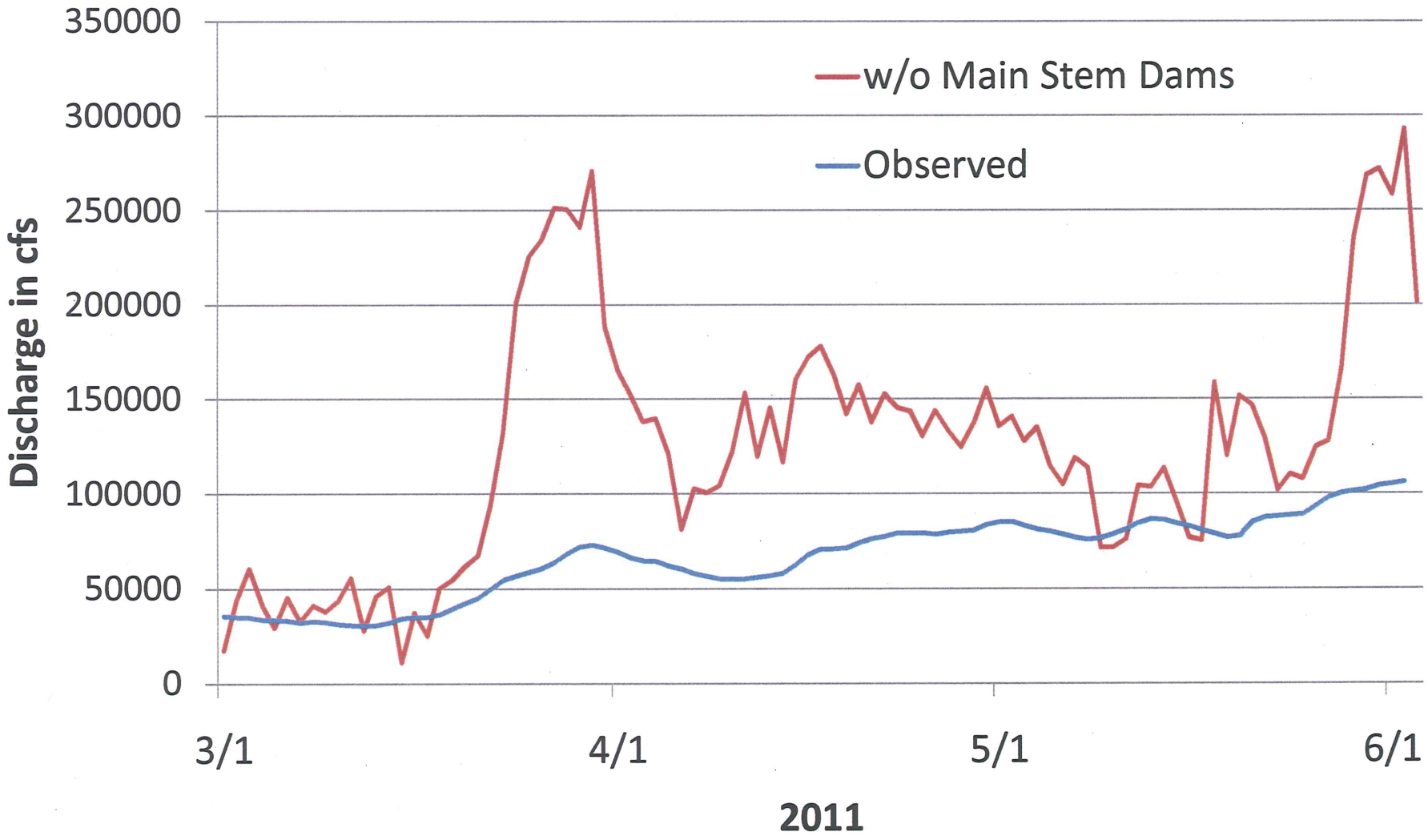
From: [redacted] NWO
Sent: Saturday, June 04, 2011 9:29 AM
To: Farhat, Jody S NWD02; [redacted] NWD02
Cc: [redacted] NWO; [redacted] NWO
Subject: Omaha Unregulated Flow
Attachments: Omaha_unreg_flow_2011.pptx

Jody and Kevin,

Attached is a slide with unregulated flow at Omaha compared to observed. This will be in todays CMT brief. This include only main stem holdouts routed to Omaha.

[redacted]
Chief, Hydrology Section
Omaha District
US Army Corps of Engineers
1616 Capitol Ave
Omaha, Nebraska 68102
[redacted]

Missouri River At Omaha



[redacted] NWO

From: [redacted] NWD
Sent: Saturday, June 04, 2011 9:25 AM
To: McMahon, John R BG NWD; Blechinger, Erik T NWO; Farhat, Jody S NWD02
Cc: Hofmann, Anthony J COL NWK; [redacted] NWD; Ruch, Robert J COL NWO
Subject: Re: Technical Assistance - Time Sensitive (UNCLASSIFIED)

Yes, I believe we all agree this is dangerous. I exchanged notes with [redacted] on this - agreed that HQ take this on given politics involved. We also noted this is unlikely to go anywhere. I think when site visit or other discussions come up with Cong or his staff we simply note that we have asked HQ to consider any request for feedback; also can note (as our folks have already to Congressman's staff) there are problems in view of stautory mandates e.g. ESA, NEPS, CWA, etc. I understand the LD that started this is new and may be grasping for ideas.

Happy to discuss when you get a chance to call.

[redacted]

Message sent via my BlackBerry Wireless Device

----- Original Message -----
From: McMahon, John R BG NWD
To: [redacted] NWD; Blechinger, Erik T NWO; Farhat, Jody S NWD02
Cc: Hofmann, Anthony J COL NWK; [redacted] NWD; Ruch, Robert J COL NWO
Sent: Sat Jun 04 05:52:35 2011
Subject: Re: Technical Assistance - Time Sensitive (UNCLASSIFIED)

[redacted]

I have serious reservations about being party to such a play--why would we? At the behest of a single Member? Let's discuss before we respond--this just feeds the mistrust of us and the tension between upper and lower basin. Thanks.
Vr/john

----- Original Message -----
From: [redacted] NWD
To: McMahon, John R BG NWD
Cc: Hofmann, Anthony J COL NWK; [redacted] NWK; [redacted] NWD
Sent: Fri Jun 03 17:56:50 2011
Subject: FW: Technical Assistance - Time Sensitive (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

Sir, fysa.

[redacted]

-----Original Message-----
From: [redacted] NWD
Sent: Friday, June 03, 2011 5:54 PM
To: [redacted] HQ02
Cc: [redacted] NWD; Blechinger, Erik T NWO; [redacted] NWK; [redacted] NWD; [redacted] NWO; [redacted] NWO; [redacted] NWK; [redacted] NWO;

Blair, Amy E NWK; [redacted] NWK; [redacted] NWO; [redacted] NWD; [redacted] NWK
Subject: RE: Technical Assistance - Time Sensitive (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

[redacted]

Need help from HQ. We got the email below from Congressman Graves staff. Our NWK folks talked to him and it is our understanding that the intent is to insert language that will in effect make flood control and navigation the sole purposes of operation for the Missouri River projects. They realize this would best occur in a WRDA bill and there are legal limitations beyond the Master Manual, but their only avenue to use this legislation is 2012 E&W Appropriations. It was explained that Corps has to comply with all laws (ESA, CWA, NEPA. etc) and with the current operations, flood risk management was our top priority. Anyway, we believe it would be best given the sensitivities of the drafting request that we get HQ assistance to respond. Please advise on way forward.

[redacted]

----- Original Message -----
From: Farhat, Jody S NWD02
To: [redacted] NWD; Blechinger, Erik T NWO; [redacted] NWO
Sent: Fri Jun 03 07:18:58 2011
Subject: FW: Technical Assistance - Time Sensitive (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

FYI

-----Original Message-----
From: Matousek, Mike [mailto:Mike.Matousek@mail.house.gov]
Sent: Friday, June 03, 2011 9:03 AM
To: Farhat, Jody S NWD02; Blair, Amy E NWK; Combs, David L NWK
Cc: Roe, Melissa
Subject: Technical Assistance - Time Sensitive

Hey Dave,

Congressman Graves is considering offering an amendment to the Energy and Water Appropriations Act for FY12 to amend the Flood Control Act of 1944 and/or the Missouri River Authorized Purposes Study. It would look something like this:

"None of the funds made available in this Act shall be used to optimize the benefits of recreation, water quality and fish and wildlife pursuant to the Flood Control Act of 1944 and/or the Missouri River Authorized Purposes Study."

Can you please provide technical feedback on this? I'll assume you know what we're getting at, but if not please give me a call at the number below. This is somewhat time sensitive, as the Energy and Water Appropriations bill is coming to the flood very soon.

Thanks for your help.

Mike

Mike Matousek

Legislative Director

Congressman Sam Graves (MO-06)

1415 Longworth HOB

Washington, DC 20515

(W) 202-225-7041

(F) 202-225-8221

Classification: UNCLASSIFIED
Caveats: NONE

Classification: UNCLASSIFIED
Caveats: NONE

Classification: UNCLASSIFIED
Caveats: NONE

Classification: UNCLASSIFIED
Caveats: NONE

Classification: UNCLASSIFIED
Caveats: NONE

[redacted] NWO

From: [redacted] NWO
Sent: Saturday, June 04, 2011 8:49 AM
To: CENWO-EOC NWO; Williamson, Eileen L NWO; [redacted] M MVR
Cc: [redacted] NWO; [redacted] NWO; [redacted] NWO; Farhat, Jody S NWD02
Subject: Mainstem data for NWO sitrep 6/4/11 (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

Notes for data below: pool elevation is the midnight value; average inflows and average releases are average daily values; scheduled releases are the release from the project at the end of the day per yesterday's project orders.

Fort Peck Dam (MT)

6/3 Pool Elev: 2250.2 ft-msl

24-hr change: 0.2'

6/3 Ave Inflow: 56,000 cfs

6/3 Ave Release: 19,000 cfs

6/4 Scheduled Release: 30,000 cfs

Garrison Dam (ND)

6/3 Pool Elev: 1853.7 ft-msl

24-hr change: -0.1'

6/3 Ave Inflow: 133,000 cfs

6/3 Ave Release: 113,200 cfs

6/4 Scheduled Release: 115,000 cfs

Oahe Dam (SD)

6/3 Pool Elev: 1619.1 ft-msl

24-hr change: 0.2'

6/3 Ave Inflow: 104,000 cfs

6/3 Ave Release: 94,200 cfs

6/4 Scheduled Release: 120,000 cfs

Big Bend Dam (SD)

6/3 Pool Elev: 1419.4 ft-msl

24-hr change: -0.3'

6/3 Ave Inflow: 83,000 cfs

6/3 Ave Release: 89,100 cfs

6/4 Scheduled Release: 120,000 cfs

Fort Randall Dam (SD)

6/3 Pool Elev: 1360.2 ft-msl

24-hr change: 0.1'

6/3 Ave Inflow: 97,000 cfs

6/3 Ave Release: 91,200 cfs

6/4 Scheduled Release: 107,000 cfs

Gavins Point Dam (NE-SD)

6/3 Pool Elev: 1206.3 ft-msl

24-hr change: 0.0'

6/3 Ave Inflow: 83,000 cfs

6/3 Ave Release: 84,900 cfs

6/4 Scheduled Release: 100,000 cfs

Roy McAllister
Missouri River Basin Water Management Division Northwestern Division Corps of Engineers
402-996-3861
roy.f.mcallister@usace.army.mil

[redacted] NWO

From: [redacted] NWO
Sent: Saturday, June 04, 2011 8:37 AM
To: [redacted] NWO; [redacted] NWO
Cc: [redacted] NWO; [redacted] NWO; Bertino, John J Jr NWO; Farhat, Jody S NWD02; [redacted] NWD02; [redacted] NWD02; [redacted] NWD02
Subject: RE: Spillway Rating Table Update (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

[redacted]

Can you run this one to ground, please.

Thanks,

[redacted]

-----Original Message-----
From: [redacted] NWO
Sent: Saturday, June 04, 2011 8:20 AM
To: [redacted] NWO; [redacted] NWO
Cc: [redacted] NWO; [redacted] NWO; Bertino, John J Jr NWO; Farhat, Jody S NWD02; [redacted] NWD02; [redacted] NWD02; [redacted] NWD02
Subject: FW: Spillway Rating Table Update (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

[redacted]:

Can you check with [redacted] on these new tables? I was not aware they were changing. The new tables are about 1000 cfs less for the past days discharge. Today, at a 22,000 release they look pretty close. Do they match the Rating Curves that we have used for years? I want to make sure these spillway discharges are right.

[redacted]

-----Original Message-----
From: [redacted] NWO
Sent: Friday, June 03, 2011 6:02 PM
To: [redacted] NWO
Cc: Farhat, Jody S NWD02; Bertino, John J Jr NWO; [redacted] NWO; [redacted] NWO; Schenk, Kathryn M NWO; [redacted] NWO; [redacted] NWO
Subject: FW: Spillway Rating Table Update (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

[redacted]

Make sure you keep Reservoir Control and Engineering Division in the loop on these. They must have accurate release information.

[redacted]

-----Original Message-----
From: [redacted] NWD02
Sent: Friday, June 03, 2011 5:06 PM
To: [redacted] NWO
Subject: RE: Spillway Rating Table Update (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

We are now. Thanks.

[redacted].
Reservoir Regulation Team Lead
Missouri River Basin Water Management,
Northwestern Division, USACE
[redacted]
[redacted] (fax)

-----Original Message-----
From: [redacted] NWO
Sent: Friday, June 03, 2011 3:41 PM
To: Farhat, Jody S NWD02; [redacted] NWD02; [redacted] NWD02; [redacted] NWD02
Subject: FW: Spillway Rating Table Update (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

All:

Are you all aware of this change?

[redacted]

-----Original Message-----
From: [redacted] NWO
Sent: Friday, June 03, 2011 12:18 PM
To: DLL-CENWO-FP-Operator
Subject: Spillway Rating Table Update (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

The spillway rating table has been updated in ppcs as per the attached tables.

[redacted]
Electrical/PPCS Engineer
U.S. Army Corps of Engineers
Operations Division
Office: [redacted]
Cell: [redacted]

Classification: UNCLASSIFIED

[redacted] NWO

From: [redacted] NWO
Sent: Saturday, June 04, 2011 8:20 AM
To: [redacted] NWO; [redacted] NWO
Cc: [redacted] NWO; [redacted] NWO; Bertino, John J Jr NWO; Farhat, Jody S NWD02; [redacted] NWD02; [redacted] NWD02; [redacted] NWD02
Subject: FW: Spillway Rating Table Update (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

[redacted]

Can you check with [redacted]on these new tables? I was not aware they were changing. The new tables are about 1000 cfs less for the past days discharge. Today, at a 22,000 release they look pretty close. Do they match the Rating Curves that we have used for years? I want to make sure these spillway discharges are right.

[redacted]

-----Original Message-----
From: [redacted] NWO
Sent: Friday, June 03, 2011 6:02 PM
To: [redacted] NWO
Cc: Farhat, Jody S NWD02; Bertino, John J Jr NWO; [redacted] NWO; [redacted] NWO; Schenk, Kathryn M NWO; [redacted] NWO; [redacted] NWO
Subject: FW: Spillway Rating Table Update (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

[redacted]

Make sure you keep Reservoir Control and Engineering Division in the loop on these. They must have accurate release information.

[redacted]

-----Original Message-----
From: [redacted] NWD02
Sent: Friday, June 03, 2011 5:06 PM
To: [redacted] NWO
Subject: RE: Spillway Rating Table Update (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

We are now. Thanks.

[redacted]
Reservoir Regulation Team Lead
Missouri River Basin Water Management,
Northwestern Division, USACE
[redacted]
[redacted] (fax)

-----Original Message-----
From: [redacted] NWO
Sent: Friday, June 03, 2011 3:41 PM
To: Farhat, Jody S NWD02; [redacted] NWD02; [redacted] NWD02; [redacted]
NWD02
Subject: FW: Spillway Rating Table Update (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

All:

Are you all aware of this change?

[redacted]

-----Original Message-----
From: [redacted] NWO
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To: DLL-CENWO-FP-Operator
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Classification: UNCLASSIFIED
Caveats: NONE

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[redacted]
Electrical/PPCS Engineer
U.S. Army Corps of Engineers
Operations Division
Office: [redacted]
Cell: [redacted]

Classification: UNCLASSIFIED
Caveats: NONE

Classification: UNCLASSIFIED
Caveats: NONE

Classification: UNCLASSIFIED
Caveats: NONE

Classification: UNCLASSIFIED
Caveats: NONE

[redacted] NWO

From: McMahon, John R BG NWD
Sent: Saturday, June 04, 2011 7:53 AM
To: [redacted] NWD; Blechinger, Erik T NWO; Farhat, Jody S NWD02
Cc: Hofmann, Anthony J COL NWK; [redacted] NWD; Ruch, Robert J COL NWO
Subject: Re: Technical Assistance - Time Sensitive (UNCLASSIFIED)

[redacted]

I have serious reservations about being party to such a play--why would we? At the behest of a single Member? Let's discuss before we respond--this just feeds the mistrust of us and the tension between upper and lower basin. Thanks.
Vr/john

----- Original Message -----
From: [redacted] NWD
To: McMahon, John R BG NWD
Cc: Hofmann, Anthony J COL NWK; [redacted] NWK; [redacted] NWD
Sent: Fri Jun 03 17:56:50 2011
Subject: FW: Technical Assistance - Time Sensitive (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

Sir, fysa.

[redacted]

-----Original Message-----
From: [redacted] NWD
Sent: Friday, June 03, 2011 5:54 PM
To: [redacted]; [redacted] HQ02
Cc: [redacted] NWD; Blechinger, Erik T NWO; [redacted] NWK; [redacted] NWD; [redacted] NWO; [redacted] NWO; [redacted] NWK; [redacted] NWO; Blair, Amy E NWK; [redacted] NWK; [redacted] NWO; [redacted] NWD; [redacted], [redacted] NWK
Subject: RE: Technical Assistance - Time Sensitive (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

[redacted]

Need help from HQ. We got the email below from Congressman Graves staff. Our NWK folks talked to him and it is our understanding that the intent is to insert language that will in effect make flood control and navigation the sole purposes of operation for the Missouri River projects. They realize this would best occur in a WRDA bill and there are legal limitations beyond the Master Manual, but their only avenue to use this legislation is 2012 E&W Appropriations. It was explained that Corps has to comply with all laws (ESA, CWA, NEPA. etc) and with the current operations, flood risk management was our top priority. Anyway, we believe it would be best given the sensitivities of the drafting request that we get HQ assistance to respond. Please advise on way forward.

[redacted]

----- Original Message -----
From: Farhat, Jody S NWD02
To: [redacted]t NWD; Blechinger, Erik T NWO; Eckert [redacted]
Sent: Fri Jun 03 07:18:58 2011
Subject: FW: Technical Assistance - Time Sensitive (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

FYI

-----Original Message-----
From: Matousek, Mike [mailto:Mike.Matousek@mail.house.gov]
Sent: Friday, June 03, 2011 9:03 AM
To: Farhat, Jody S NWD02; Blair, Amy E NWK; [redacted] NWK
Cc: Roe, Melissa
Subject: Technical Assistance - Time Sensitive

Hey Dave,

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Thanks for your help.

Mike

Mike Matousek

Legislative Director

Congressman Sam Graves (MO-06)

1415 Longworth HOB

Washington, DC 20515

(W) 202-225-7041

(F) 202-225-8221

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Caveats: NONE

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